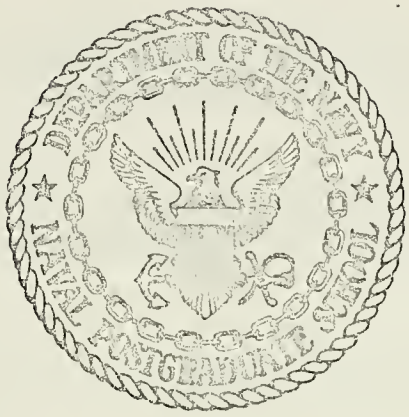
# A CURRICULUM TO SUPPORT THE NAVY TRAINING/EDUCATION MANAGEMENT SUBSPECIALTY (9630) AT THE NAVAL POSTGRADUATE SCHOOL

Robert Louis Smith

# NAVAL POSTGRADUATE SCHOOL
## Monterey, California



# THESIS

A CURRICULUM TO SUPPORT THE
NAVY TRAINING/EDUCATION MANAGEMENT
SUBSPECIALTY (9630)
AT THE
NAVAL POSTGRADUATE SCHOOL

by

Robert Louis Smith

Thesis Advisor: R. S. Elster

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Naval Postgraduate School

by

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ABSTRACT

OPNAV INSTRUCTION 1211.6D dated 8 January 1973 identified a new naval officer subspecialty, Training/Education (T/E) Management (9630). The instruction neither defined the new subspecialty nor specified the educational requirements necessary for the subspecialist.

This paper presents background information leading to the identification of the T/E management subspecialty and an operational definition of the subspecialty. The paper continues with the results of a survey taken of a representative sample of the naval training community to identify the academic subject matter that the T/E management subspccialist should study in a postgraduate course of education. The results of the survey are used to develop two alternative curriculums to support the subspecialty which meet the Naval Postgraduate School (NPS) requirements for the degree of Master of Science in Management. Alternative ONE describes a unique curriculum for the subspecialty and Alternative TWO modifies the (817) Management Curriculum at NPS to support a Training/Education Management option.

The conclusions of the paper argue that the T/E management subspecialty does not require its own unique academic curriculum.

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# I. INTRODUCTION

On 9 July 1971, the Chief of Naval Operations, Admiral E. R. Zumwalt, Jr., issued a CNO policy statement on officer specialization. The tone of the statement was considered heresy by many senior members of the Navy at the time of its issuance and is still attacked by staunch traditionalists who view command at sea as the only yardstick for measuring the professional competence of a Naval Officer. As RADM G. S. Morrison described it, "Tradition has it that, for unrestricted line officers, the course to flag rank in the Navy is through command at sea. Since the founding of the Navy, this tradition has grown so deep as to be axiomatic (1971, p. 15)." However, as early as 1965 the glamour of old line tradition was beginning to tarnish. As then RADM (now VADM (Ret)) J. CALVERT put it, "Tradition is important but it must act as a backdrop to our thinking, not a substitute for it. The Navy treasures its traditions, but nuclear weapons and the other problems of the closing decades of the twentieth century point in new directions for which tradition offers small guidance (1965, p. 151)." Highlighting the CNO statement were the following comments:

> The requirements of our smaller, more professional Navy will demand certain highly specialized officers in many of the subcategories of warfare specialization such as ASW,

AAW, EW, and SOSUS and the warfare supporting fields such as TRAINING (Author's caps), logistics and the more traditional subspecialties, such as communications and intelligence. While both the specialist and the generalist can perform well in the operational environment, there is an acute need for the talents of a specialist with concentrated education, training and experience in the warfare subcategories to meet certain critical requirements afloat and ashore . . . .

There has and will continue to be a need for generalists, but there has developed a more definite requirement for the specialist as well . . .

It is the policy of the CNO that both the generalist and the specialist are essential in our operating forces. Either a generalist or a specialist may command any of our operating units . . . There will no longer be an exclusive path to the top in any specialty. The key will continue to be fitness to meet the Navy's future needs as demonstrated by performance and experience in specialized as well as generalized billets (CNO, 1971, p. 3).

Translating the CNO policy statement into being, the Chief of Naval Personnel established the Operational Technical Managerial System (OTMS). OTMS is the implementation of officer professional

development management in all areas of Navy endeavor and is built upon the base created by the original subspecialty system of 1958 (Bagley, 1972, p. 1). OTMS as its name indicates, includes the operational managerial concept with its spectrum approach to officer career development. The "technical" resulted from a recognition by the Navy that, along with operational and managerial expertise, it also needs technical expertise within its officer corps. It is interesting to note that Secretary of the Navy John Warner also recognized that fact in his letter to the 1973 flag officer selection board when he wrote, "In addition to flag officers possessing the highest degree of excellence in command at sea, the Navy has equal needs for officers whose expertise lies primarily in technical and managerial areas (SECNAV, 1973, p. 3)." OTMS also includes the Navy's subspecialist programs, with a primary goal of ensuring that officers are properly coded in order to provide the correct assets to fill the subspecialty billets.

The "raison d'etre" of the Navy is to fight ships and aircraft at sea. To support the Navy's mission with officer personnel across the full spectrum of endeavors requires officers both afloat and ashore. Some navies have tried to meet these requirements through the creation of a wet/dry or sea/shore Navy. Admiral Zumwalt has firmly rejected that approach for the U. S. Navy and instead supports OTMS to blend together the sea-going operational expertise with the technical and managerial expertise requirements within the Navy's officer corps. Secretary of the Navy John Warner in his 1973 letter to the

flag officer selection board added the support of his office to OTMS by requesting the Chief of Naval Personnel to brief the flag board on the program as the Navy's current assignment philosophy (SECNAV, p. 3). Operational requirements are clearly defined and their affect on career progression in the Navy is well understood. Technical and managerial requirements however, are still being identified through a process of evolution. If our Navy is to meet the challenge of technological and managerial advancement, OTMS must be made to work and be recognized by all officer personnel as a viable system. Generalizing the remarks of Admiral Morrison concerning the problems of the December 1970 aviation major command selection board, the necessity was apparent to spend "a considerable time" discussing the "reordering of future career patterns . . . First and foremost, the Board was particularly sensitive to the change in the sacrosanct tradition of sea command as the main road to flag rank (p. 15)."

Our Navy today is operating ships and aircraft; command and control systems; weapons control and delivery systems; logistic support systems; and other automated data processing systems that were beyond imagination in the not too distant past. At the same time, the rate of technological advancement and replacement of hardware continues to increase. This unparalleled rate of change, while marvelled at by the scientific community, has produced a gaping shortage in the personnel barrel of skilled manpower. Adding to the

problem is the creation of an "all-volunteer" military force. The Navy, like all of the services, is faced with the reality of volunteers who do not have the educational background or the intellectual curiosity of the young men previously inducted through conscription or induced to serve because of the presence of the draft (Byrneside, 1971, pp. 48-50). With the draft gone and a young citizenry which believes war is obsolete, the military services must continue to meet their commitments with a smaller but more highly trained force (Uhlig, 1972, p. 11). The training requirements assume greater significance as we try to substitute technology for the smaller number of men in uniform.

Truely the task of training fewer men to a higher level of performance, to meet a mounting number of operational commitments, with equipment of increasing sophistication and complexity, with continually escalating training costs, and with fewer instructors to carry out the task is something of a crisis for the Navy's training community. Innovation and change become requirements if the Navy is to meet the task. These requirements stem from "a combination of dissatisfaction with present practices and a foresight that causes military educators to question whether approaches that seem quite appropriate today are satisfactory for meeting the future's requirements (Roberts, 1971, p. 22)."

It is interesting to note that Roberts uses the descriptive phrase "military educators" which alludes to something that was nonexistant in the Navy until January 1973. Certainly there were naval officers

filling training and in some cases education billets but not until OPNAVINST 1211.6D was promulgated on 8 January 1973 was the 9630 Training/Education Management officer subspecialty area identified. That is not to say the subspecialty had not been considered earlier. Files are continuous on the subject in the Office of the Chief of Naval Operations since 1960 and have included studies on requirements ranging from subspecialist to a permanent professor corps similar to the Army and Air Force. The conclusions of the early studies and discussions were that the Navy did not need a training and education subspecialty based on formal educational qualifications. As late as March 1972, there were still opponents to the subspecialty in BUPERS (Pakradooni, 1972). However, with the support of the staff of the Chief of Naval Training, the scales were finally tipped in favor of identifying and establishing the subspecialty. The Naval Training Command which was created in 1971, has approximately 6200 officer billets of which more than 1350 are for Lieutenant Commanders and more senior officers who are directly involved in the management of training and education activities. These activities are responsible for the education and training of officer and enlisted personnel to prepare them to operate in the more sophisticated, demanding Navy of the future. In spite of the increasing cost of education and training, no provisions have been made to provide specific education or preparation of officers to fill these billets (Vernam "A", 1973). OPNAVINST 1211.6D establishes criteria and procedures for identifying

officer billets in specifically designated areas of interest to the Navy which should be occupied by incumbents who have completed doctoral level, master's level, or less than master's level education or who have specialized experience and/or training. The word "level" as used in the instruction does not imply a requirement for a degre, but rather that a commensurate education at the level specified is essential for optimum performance of duty. OPNAVINST 1211.6D does not specificy the curriculum which equates to the "commensurate education" however, but does state that the education criteria should be consistent with the civilian academic system. Since no other source identifies the educational criteria necessary for a Navy Training and Education Management Subspecialist, this paper will construct a curriculum to support the program.

## II. THE NATURE OF THE PROBLEM

Earlier it was stated that the Navy's reason for being is to fight ships and aircraft at sea. However, training and schooling are as vital to the Navy as its ships and aircraft (Washbush, 1972, p. 117). The Chief of Naval Training, Vice Admiral M. W. Cagle, has said, "Training equals readiness. No training, no readiness. Poor training, poor readiness. Superior training, superior readiness (1972, p. 1)." Thus was chosen the motto of the Naval Training Command, "TRAINING FOR VICTORY AT SEA." Continuing Admiral Cagle's thoughts, "The primary purpose of training is to produce a victorious, combat Navy which can guarantee victory at sea . . . The better trained our Navy, the less willing any potential enemy will be to challenge us, and the greater will be the likelihood of peace." Admiral Cagle feels strongly enough about the training business that he has gone on record as envisioning full careers in Navy training for officers and enlisted with follow-on careers in teaching and education (Parker, 1972, p. 1). The creation of a Navy corps of training and education management specialists would seem a natural step in the right direction.

The unparalleled rate of technological change and advancement that continually produces our critical shortages of skilled manpower does so by outstripping "the Navy's capability to determine the precise

skills and knowledge required (to be trained) to maintain the equipment (Training, 1972, p. 5)." The training system has never been able to stay ahead of the power curve. Rather it has continually been trying to catch up. It has reacted by broadening the trainee's educational base hoping that the increase in knowledge would alone help the trainee cope with the new situation or task facing him. This would not be so bad if training were only required in one area. However, our Navy is faced with training surface, subsurface and aviation personnel with a high turnover rate over a varying range of skills. To handle this enormous training problem the Navy established on 1 August 1971, a major single command with the responsibility for managing all navy training (Training, p. 6).

The basis of the single training command concept was the belief that greater overall control and direction of training could be achieved through one central office (Whetstone, 1973, p. 5). Whenever any new system is being considered for adding to the Navy's arsenal, a tremendous chain of training requirements is forged. Making up the links of the chain are training materials; training programs; and schools to handle the training. To keep the links strong, training requirements must be identified early and completely and not be allowed to get lost along the length of the chain. Beyond these initial requirements are the long range considerations that cover the life time of the system which may be up to 30 years. Under the single

command concept, according to Marc Whetstone, the Chief of Naval Training has identified four basic elements to handle the individual links of the chain. These elements are: first, requirements and resources identification; second, training and education program development; third, their application; and fourth, evaluation (p. 4). For the first time the Navy has under one "hat" the responsibility for unifying its training business and the management of its funds, facilities, curricula and training support activities. But pulling together all of the fragmented parts into a cohesive and effective organization takes time and talent.

Training and education taken collectively as a field and those engaged in its management are caught up in a period of rapid and unpredictable change. The need exists to train people without either the trainees or the training becoming obsolete. How the various managers play the game, read the cues, and adapt to the varying changes is one of the keys to the success of any training effort. Who are the Navy's training managers? OPNAV INSTRUCTION 1211.6D identifies them as officers carrying the 9630 subspecialty code. However, the following extract from a Chief of Naval Personnel (CNP) letter casts a different light on the problem.

> A Subspecialty for Training/Education Management is still in the study and development stage. Personnel coding criteria have not been defined at this point, nor have specific billets been identified. Initial identification

of subspecialists for this community will be accomplished by a selection board convened for this purpose, probably in FY 74 (CNP, 1973).

The establishment of a single-hatted Navy Training Command was the first major effort in a number of years to get ahead of the power curve leading to improvement of Navy training. In fact the command's first chief described it as " . . . one of the most sweeping organizational changes the Navy has made since World War II (Prina, 1971, p. 6)." The development of a corps of professionally trained Navy training/education managers to support the Training Command in upgrading the training system may well prove to be the second major effort in the same direction.

The idea for a corps of professionally trained academic careerists is not new. In 1969, Father JOHN P. RAYNOR, S. J., then President of Marquette University wrote a letter to the Secretary of Defense concerning ROTC instructors. In his letter he said:

> The very concept of a university is changing within our society. Those who currently are engaged in university careers feel this movement keenly. Those who expect to work in this changing environment will be less effective if they do not understand the direction and extent of the change. Yet understanding of this type will require rather thorough knowledge of the history and philosophy of higher education

as well as knowledge of the structure and governance of higher education institutions.

> ROTC instructors . . . must be judged in large part as their colleagues are judged, that is, on the basis of teaching ability and scholarly attainment . . .
>
> . . ., the creation of a corps of academic careerists within the Armed Forces would seem of significant importance if officers are to continue to be educated on university campuses (Washbush, p. 116).

In December 1971, the Commanding Officer, Naval Damage Control Training Center supplied the following comments in a personal letter to the Chief of Naval Technical Training:

> The management and administration of training requires the same broad command and management abilities as the management of weapons systems and an officer managing a training activity ashore may well acquire a broader understanding of Navy management than officers performing limited functions on major staffs or in systems command headquarters. Therefore, the training management billets in which officers can acquire experience to prepare them for higher rank and command should be identified and "sold" to the Navy with at least as much force as weapons systems management billets are being promoted.

. . . to improve the image of training management billets, I recommend strongly that a subspecialty in training management be defined and that key training management billets be coded for this subspecialty . . . (May, 1971).

On 30 March 1972, Captain F. M. Symons, then Commanding Officer, Recruit Training Command, Great Lakes, forwarded an official letter to the Chief of Naval Operations (OP-01) the subject of which was, "Officer subspecialty code, establishment of: recommendation for". In his letter Captain Symons reiterated problems previously mentioned in this paper, namely:

A. Manning ever more complex systems with fewer and fewer men.

B. Need for more effective and responsive education and training establishment to prepare trainees.

C. Officers charged with training responsibilities must be knowledgeable in the supervision and administration of training institutions (CO, 1972).

Captain Symons also pointed out that at that time the only recognition of any expertise in the field was through subspecialty code 9610 (MANPOWER/PERSONNEL MANAGEMENT) which was not "responsive to the needs of the education and training establishment" and furthermore did not differentiate between the administrative aspects of personnel administration and education/training management.

(NOTE: During a personal interview with CAPT P. C. KEENAN, USN, Head, Officer Professional Development Division, BUPERS, he indicated the present intention of BUPERS is to fill identified 9630, TRAINING/EDUCATION MANAGEMENT subspecialty billets with 9610 MANPOWER/PERSONNEL MANAGEMENT subspecialists until such time as the Navy identifies 9630 personnel, probably in the Fall of FY 74).

Captain Symons concluded by recommending, "that a new subspecialty code be established to recognize graduate level education in the field of educational supervision and administration (CO, 1972)."

Generalizing upon the comments and recommendations of the above three individuals, the benefits to the Navy of a career corps of training and education management subspecialists become rather obvious and extend to cover all facets of Navy training. In the area of officer development are staff and administrative billets at the Naval Academy, OCS, NROTC units, Navy and interservice colleges and other Navy and Department of Defense assignments. In the field of enlisted training are key billets at enlisted schools and training commands with particular emphasis on supervisory educational administration, improving curricula, and improving the techniques and quality of instruction.

Since its establishment, the staff of the Commander, Naval Training Command has been collecting comments and recommendations

such as the ones included in this paper to substantiate the identification and development of the Training/Education Management subspecialist. On 21 June 1972, the Chief of Naval Training Executive Staff initiated project I-2 with the objective of determining the feasibility of developing a subspecialty career pattern for officers in the field of Training/Education Management. Explicit in the subspecialty was the desire to achieve career enhancement in assignment to training billets with an attendant increase in efficient and effective training management. Commander May, the Commanding Officer of the Naval Damage Control Training Center, had expressly cited career enhancement as a major issue in his letter of December 1971 to the Chief of Naval Technical Training. In his own words,

> The very fact that certain training command billets are considered to be dead-ends, i.e., that incumbent Commanding Officers are traditionally passed over or retire, is perceived by their subordinates as an indication that the Navy considers the command a second rate command and that they themselves might be considered second rate. You can imagine the effect this has on junior officer motivation. This "dead-end" syndrome might well carry over to a training command's students and impair its credibility.

The credibility of Commander May's statement may be attacked by many senior officers in the Navy's Command and Personnel

structure, but based on eighteen years of experience the "dead-end syndrome" does enjoy non-scholarly credibility among many of the Navy's officer corps. The fact that it does exist in the mind of senior officers was brought to light in an anonymous article entitled "TRAINING DUTY - NO DEAD END" which appeared on the inside front cover of the April 1973 issue of TRANAV, the magazine of Naval Training. The article reported that Navy Captain R. T. Thomas had assumed command of the fast combat support ship USS Camden (AOE-2) straight from the Training Command. The article further stated that Captain Thomas' orders had "delighted" the Chief of Naval Training, Vice Admiral Cagle, as "proof that duty with the Training Command is no dead-end."

CNT Executive Staff Project I-2 further identified five planned activities to be carried out. The first was to determine the need for a Training/Education Management subspecialty. This need has been officially recognized and identified in OPNAV INSTRUCTION 1211.6D. The second and third activities include an investigation of the policies of the other services in regard to a training career and a review of the Navy's personnel assignment policies as they pertain to the training establishment. These activities will be left to the examination of others. The last two activities, documenting the training/education skills required by the subspecialist and establishing the education program to support the subspecialty will be the subject of the remainder of this paper.

## III. EXPERIMENTAL PROCEDURE

As was indicated earlier, the subspecialty for Training and Education (T/E) Management has been officially recognized in OPNAV INSTRUCTION 1211.6D, but the specifications are still in the study and development stage. In order to document the skills required by the 9630 subspecialist and establish the education program required to support the subspecialty, the necessity exists to define what it is that the 9630 officer should be. The problem of definition has been discussed at length with Commander C. C. VERNAM of Chief of Naval Training (CNT) staff in Pensacola, Fla., who until his detachment in April 1973 was the chief architect for CNT of the 9630 program. In the course of the discussions, the following composite definition for the 9630 subspecialist was proposed and its use agreed upon until such time as an official definition and set of specifications are included in the Manual of the Bureau of Naval Personnel.

> The 9630 subspecialist should be an operationally experienced officer with formal postgraduate training in the field of training and education management. Once trained as and designated 9630, he should be charged with the responsibility for administration and management of varying programs for the training and education of all

> naval personnel. In carrying out these functions the 9630 subspecialist should be just that, i.e., "a subspecialist". He should neither replace the civilian educational specialist nor function as a professor in uniform. Rather, his job should be to apply his newly learned talents to develop appropriate curricula, training systems and techniques, and as necessary to adapt civilian methods to Navy training needs.

The Navy training/education manager will become in essence the organization front man for CNT. When an operational problem develops in the Fleet which the operator believes can be solved through an application of effective training, he will turn to the 9630 subspecialist for assistance. The 9630 being operationally experienced will be able to understand the problem in terms of the operator and because of his specialized training will either develop a solution to the problem or coordinate a solution with CNT's education specialists in their own academic language. The 9630 subspecialist will then go back to the operator and present him with a training program or set up a formal course of instruction.

Although the above is overly generalized, it does provide some ideas on how the 9630 subspecialist will function. Once tacit agreement with CNT staff had been reached on what those functions should

be, the next question to come to mind was, what should the subspecialist be required to learn in the course of preparing to assume responsibility for the administration and management of Navy training and education programs? A basic assumption at this point was that the potential 9630 selected to attend the Naval Postgraduate School (NPS) had already completed an undergraduate program and possessed a BA/BS in some unspecified discipline. The 9630 program would therefore not be required to provide initial training in a specific technical/non-technical area per se, but rather would be required to provide the skills and tools necessary for the 9630 subspecialist to move effectively into the area of administration and management of formal courses of instruction covering their own specialties. This indicated that a blend of courses covering both the education discipline as well as the management area would be required in the supporting curriculum.

In order that the curriculum developed be representative of the needs of the entire Navy training community and not a reflection of the perceived needs of one individual, the idea of mailing a questionnaire to selected schools and training activities within the CNT organization was discussed with CDR VERNAM of CNT staff. He agreed to lend the support of the Chief of Naval Training to the idea if a format capable of yielding quantifiable data could be developed. Since so few persons (if any) within the Navy knew what the 9630 subspecialist was intended to be when officially defined, the idea of

going out to the training community with the definition included in this paper and requesting comments and a listing of courses thought to be applicable, was considered unworkable. Without some common denominator in the questionnaire there would be no basis upon which to measure the results. Ensuing discussion resulted in support for a questionnaire which included:

A. The definition of the Navy Training/Education Management Subspecialist upon which this paper is based.

B. A listing of typical academic courses perceived as necessary to support a Training/Education Management curriculum. The length of the list to be constrained by the need to fit within the six quarters (18 months) of the newly revised (817) Management Curriculum at the Naval Postgraduate School. (NOTE: These courses represent the common denominator for measuring the questionnaire feedback.)

C. A course ranking sheet for the respondent to annotate the perceived contribution of any of the listed courses to the professional development and management ability of a Navy Training/Education subspecialist.

D. A personal data sheet to permit comparing feedback from varying sources, e.g., Commanding Officers/

Academic Directors/ Officer Development Schools/ Enlisted Skill Schools, etc.

E. A personal comment sheet for the respondent's use in providing comments about how he perceived the 9630 subspecialty, his evaluation of the need for the subspecialty, and any additional courses he perceived as necessary but not included in the questionnaire listing.

Since the Naval Postgraduate School does not have a School of Education, the most readily available source of information on what was included in a typical program of instruction in the field of education was the College and University Catalogue Collection in the KNOX LIBRARY at the Postgraduate School. Undergraduate and graduate programs of instruction in the general area of education offered by approximately twenty Schools of Education were read and examined for courses and the concepts underlying the programs. From these programs, nine representative courses were developed which cover typical areas of education considered to be applicable for inclusion in a postgraduate program leading to the development of a Navy Training/ Education Management Subspecialist. These nine courses were:

| I. D. NUMBER | COURSE TITLE |
|---|---|
| 03 | CURRICULUM DEVELOPMENT |
| 08 | PERSONNEL TRAINING AND DEVELOPMENT |

| | |
|---|---|
| 10 | INTERDISCIPLINARY SEMINAR |
| 11 | FUNDAMENTALS OF EDUCATION |
| 14 | EDUCATIONAL MEASUREMENT |
| 15 | EDUCATIONAL TECHNOLOGY |
| 23 | EDUCATIONAL PSYCHOLOGY |
| 24 | NAVY SCHOOL ADMINISTRATION |
| 26 | THE ADULT AS A LEARNER |

The course descriptions may be found in the copy of the questionnaire included as Appendix A. The additional eighteen courses listed in the questionnaire included fifteen taken from the core courses required of candidates for the degree of Master of Science in Management at the Naval Postgraduate School and three which were developed as alternatives to the core courses in the areas of economics and financial management. The identification (I.D.) number was assigned only as an aid in processing the respondent's rankings. The courses listed on the questionnaire represent six areas of academic endeavor which are Behavioral Science, Operations Research, Education, Financial Management, Economics, and Management Science. The listing itself was randomized in order to alleviate the possibility of the respondents assessing the contribution of each course within its own group rather than against all of the courses listed.

There is nothing magical about the number of courses listed for ranking by the questionnaire respondents. The minimum number of

courses desired, however, was twenty-four. The number twenty-four was based on the fact that the T/E Management subspecialty code was included as part of the 96XX series, Manpower/Personnel Management in OPNAV INSTRUCTION 1211.6D. Since at the present time the only curriculum at the Naval Postgraduate School which provides P-coded inputs to the 96XX subspecialty is the personnel management (P 9610) option of the (817) Management Curriculum, the decision was made to base the T/E Management subspecialty on the same number of academic quarters - six. Assuming an academic load of four courses per student per quarter (and for the purpose of the questionnaire only, not considering any allowance for a thesis) there would be time to cover twenty-four courses. The decision to assume six quarters was substantiated by CDR VERNAM who indicated during a telephone interview that CNT intended to request that the initial inputs to the 9630 subspecialty be provided via the (817) Curriculum at the Naval Postgraduate School.

The purpose of the feedback data from the questionnaire was to obtain a listing of the suggested typical courses in the order the respondents perceived their individual contributions to the professional development and management ability of a Navy T/E management subspecialist. The highest ranked course would represent the one perceived as most significant in its overall contribution by a composite of the respondents. In order to compile the rankings, three procedures

were considered, these were: (1) The Delphi Technique, (2) The statistical Package for the Social Sciences (SPSS), and lastly, (3) the FORD Procedure.

Very briefly, the Delphi Technique is a set of procedures originally developed by the RAND Corporation in the late 1940's. Utilizing a series of questionnaires the procedure attempts to obtain a reliable consensus on a particular question from a group of experts. Interaction among the experts is accomplished through an intermediary which avoids the disadvantages of "expert round-table discussions" or direct confrontation of opposing views. As the expert answers are summarized and feedback provided to the respondents through a follow-on series of questionnaires, it is expected that the individual expert's estimates on the primary question will gradually tend to converge (Milkovich, 1972, pp. 381-382). Since the questionnaire involved ranking 27 variables and the desired sample size included a large number of varying Navy schools, the Delphi Technique was discarded. The time constraint imposed on the completion of this paper also eliminated the Delphi.

The Statistical Package for the Social Sciences (SPSS) is an integrated system of computer programs for the analysis of social science data. SPSS is capable of performing many different types of data analysis with a great deal of flexibility achieved through the use of a large number of statistical subroutines (Nie, 1970, p. 1). One

of the SPSS subroutines is the GUTTMAN Scale Analysis (GSA). GSA is a means of analyzing the underlying operating characteristics of three or more items in order to determine if their inter-relationships meet several special properties (Nie, p. 197). In using GSA, however, a single scale is limited to 12 variables and the questionnaire involved 27 variables. GSA was further limited in that it normally employs cumulative numerical rankings which the course questionnaire did not utilize. Therefore, the use of SPSS and the GUTTMAN Scale subroutine was also eliminated.

The procedure eventually selected for use in compiling the course rankings for this paper was the FORD Procedure. The procedure was originally programmed for computer application by the Survey Research Center, University of Michigan and adapted for use in the NPS IBM 360/67 system. Basically, the FORD procedure permits "an individual judge, faced with a set of alternatives to 'prioritize', to rate only those with which he is familiar, to set his own measurement scale, and to make use of ties when he sees no difference between alternatives (Arima, 1972, p. ii)." These characteristics made it especially appropriate for obtaining a composite ranking of the 27 courses presented as variables to a diverse group of respondents. In producing the composite ranking the final read-out also reflects the contribution of each respondent according to the proportionate number of comparisons he makes. This is unlike the DELPHI technique which tends to disregard the contribution of the individual (Arima, p. 3).

of the SPSS subroutines is the GUTTMAN Scale Analysis (GSA). GSA is a means of analyzing the underlying operating characteristics of three or more items in order to determine if their inter-relationships meet several special properties (Nic, p. 197). In using GSA, however, a single scale is limited to 12 variables and the questionnaire involved 27 variables. GSA was further limited in that it normally employs cumulative numerical rankings which the course questionnaire did not utilize. Therefore, the use of SPSS and the GUTTMAN Scale subroutine was also eliminated.

The procedure eventually selected for use in compiling the course rankings for this paper was the FORD Procedure. The procedure was originally programmed for computer application by the Survey Research Center, University of Michigan and adapted for use in the NPS IBM 360/67 system. Basically, the FORD procedure permits "an individual judge, faced with a set of alternatives to 'prioritize', to rate only those with which he is familiar, to set his own measurement scale, and to make use of ties when he sees no difference between alternatives (Arima, 1972, p. ii)." These characteristics made it especially appropriate for obtaining a composite ranking of the 27 courses presented as variables to a diverse group of respondents. In producing the composite ranking the final read-out also reflects the contribution of each respondent according to the proportionate number of comparisons he makes. This is unlike the DELPHI technique which tends to disregard the contribution of the individual (Arima, p. 3).

The FORD proeedure is based on forming a win-loss matrix with eaeh respondent eontributing to the eomposite read-out only those pairwise instances in whieh he has preferred one alternative (eourse) over another. From the win-loss matrix the FORD procedure then determines and assigns a weight to eaeh eourse whieh may be interpreted as odds in the sense that they represent the probability of one eourse being preferred over any other eourse. The original weights are then proeessed through a series of iterations to aehieve a rank order stability in the final weights assigned to eaeh eourse. The stability of the final weights is based on two deeisions whieh must be programmed into the FORD proeedure by each user. The first is the desired eonvergenee eriterion for the iterative determination of the weights; .005 for this paper. The seeond is the maximum number of iterations to be run in the event that the eonvergence eriterion is not met. The maximum number of iterations was set at 50 for this paper. Generally, the rank ordering of the variables, as determined from their weights, stabilizes rapidly. This implies that the rank ordering is aeeeptable even if the convergence criterion is not met. If the convergenee eriterion is met, the weights represent an interval sealing of the variables (Arima, pp. 4-7).

Onee the FORD proeedure had been deeided upon, the course ranking sheet provided eaeh respondent and the instruetion for eourse ranking were drawn up to facilitate processing the feedback data by

the procedure. The questionnaire was compiled and authorized for distribution to the Curricular Officers at the Naval Postgraduate School on 21 February 1973. Distribution to commands outside of the Naval Postgraduate School was authorized by the NPS Superintendent on 9 March 1973. The distribution list for the questionnaire was made up to provide a representative sample covering the full spectrum of naval training. A total of 196 questionnaires were distributed as follows:

| TYPE ACTIVITY (NUMBER) | TOTAL QUESTIONNAIRES |
|---|---|
| NAVAL TRAINING STAFFS (5) | 20 |
| OFFICER DEVELOPMENT (12) | 54 |
| ENLISTED TRAINING (18) | 72 |
| SPECIALTY SCHOOLS (6) | 24 |
| CURRICULAR OFFICER, NPS (10) | 26 |

The specific commands receiving questionnaires are listed in APPENDIX B.

## IV. PRESENTATION OF DATA

Each of the 196 questionnaires distributed included a cover letter to the participant (respondent) saying that the purpose of the questionnaire was to provide data for a Master's thesis. In addition, the cover letter also provided a working definition of the training/education subspecialist. The purpose in providing the definition was to ensure all respondents had a common basis upon which to base their responses. The questionnaire instruction sheet requested the respondents to rank the 27 typical academic courses according to their overall contributions to the professional development and management ability of an educational subspecialist. Ranking criteria, a set of rules, and a suggested approach were also included with the instruction sheet. The typical courses were identified by a title and an identification number (I.D.) (See Table I). A brief course description was also provided to insure that all of the respondents were working with the same knowledge of "typical" course content and not relying only on the title or their own preconceived ideas of what the course included.

The first group of questionnaires was delivered to the individual curricular officers at the Naval Postgraduate School. The curricular officers were encouraged to have their assistant curricular officers and academic associates participate in the survey in order to widen

the sample size at the Postgraduate School. Of the 26 questionnaires distributed, ten were scored and returned. The summary of results obtained from the curricular officers is presented in Table II. The remaining 170 questionnaires were distributed by U. S. Mail with four questionnaires being sent to each activity except for the U. S. Naval Academy which received ten. From the respondent's personal data sheets 55 rankings were identified by source and categorized into five groups for processing. The summary of results from each group is presented as follows:

TABLE III. COMMANDING OFFICERS

TABLE IV. NROTC UNITS

TABLE V. OFFICER DEVELOPMENT SCHOOLS

TABLE VI. NAVAL ACADEMY

TABLE VII. ENLISTED TRAINING ACTIVITIES.

From the 196 questionnaires distributed, 108 returns (55. 10%) were received. Of the 108 returns, 5 were received with no rankings and 2 were scored by NROTC students rendering them invalid. For scoring purposes, therefore, a grand total of 101 returns were considered valid. The composite ranking obtained by processing all of the 101 valid returns is summarized in TABLE VIII. For comparative purposes, the final course rankings for each of the individual groups and the composite summary are shown in TABLE IX.

Significantly, the rankings shown in each of the tables achieved rank order stability in less than the maximum allowable (50) iterations

and therefore represent a true interval scaling. The number of individual course comparisons in each table are fairly uniform with the exception of TABLE III. The variations among win percentages in TABLE III are attributed to the small sample size (7) and the gross spread in the number of comparisons made by each individual commanding officer respondent. The number of comparisons of courses made by the individual commanding officers ranged from a low of 21 to a high of 336.

In addition to their rankings, 31 respondents returned comment sheets which provided additional feedback. While their comments were individual, they tended to fall into four general groupings with the exception of two respondents who indicated the subspecialty was neither required nor desired. They believed that naval officers are by nature (or necessity) already training/education experts. Very briefly the four groups may be categorized as follows:

Group I, (6 respondents): This group did not agree with the format of the questionnaire, i. e., they did not like the idea of a list of typical courses for ranking. Most of this group of respondents indicated they ranked the courses but considered any valuation of the rankings to be too subjective. Several suggested the questionnaire should have provided a task inventory or a set of specifications for what the T/E management subspecialist should be and then request the respondents to list appropriate subject matter for a supporting academic curriculum.

Group II, (9 respondents): This group indicated too much emphasis was placed on the areas of financial management and economics. They basically subscribed to the idea that the T/E manager should be heavily schooled in the applied behavioral sciences. Several stated that the "management subjects" were not so essential to the educational subspecialist since a naval officer by the nature of his job is already strong in the area of management skills.

Group III, (6 respondents): This group indicated that you cannot train educators and administrators/managers in the same curriculum. An analogy drawn was trying to educate a brain surgeon and a hospital administrator in the same curriculum. The conclusion was they should be complementary not duplicative. Another comment indicated a non-scientist/non-engineer cannot develop an effective technical education program. The need exists for the administrator/manager of a technical school to be a technician possessed of solid technical knowledge.

Group IV, (8 respondents): This group indicated the training/education manager should be an educator first and a manager second. Their consensus was that the T/E manager required experience as a teacher in the classroom. The group also indicated there was a tremendous need to achieve a degree of standardization with regard to organization and administration of Navy training activities within the Naval Training Command.

Many of the respondents who returned comment sheets also suggested adding additional courses to the "typical listing." Many of the recommended additions were similar to courses listed in the 1972-1974 Naval Postgraduate School Catalogue. For the purposes of a curriculum to support the training/education management subspecialty at NPS, these courses would be available as electives. Additional courses neither listed in the questionnaire nor included in the NPS catalogue included:

Communication Theories and Practices

The Psychology of Change (Managing resistance to change)

Industrial Psychology

Education/Training Research Methods

Education/Training Media

Instructional Technology

The Systems Approach to Training

Personal Counseling

Job Task Analysis

TABLE I

IDENTIFICATION NUMBERS (I.D.) AND COURSE TITLES

| I.D. NUMBERS | TITLE |
|---|---|
| 01 | INDIVIDUAL AND GROUP BEHAVIOR |
| 02 | QUANTITATIVE METHODS FOR MANAGEMENT |
| 03 | CURRICULUM DEVELOPMENT |
| 04 | MANAGERIAL ACCOUNTING |
| 05 | ORGANIZATION AND MANAGEMENT |
| 06 | OPERATIONS RESEARCH |
| 07 | SURVEY OF ECONOMIC THEORY |
| 08 | PERSONNEL TRAINING AND DEVELOPMENT |
| 09 | SYSTEMS ANALYSIS |
| 10 | INTERDISCIPLINARY SEMINAR |
| 11 | FUNDAMENTALS OF EDUCATION |
| 12 | FINANCIAL ACCOUNTING |
| 13 | MACROECONOMICS |
| 14 | EDUCATIONAL MEASUREMENT |
| 15 | EDUCATIONAL TECHNOLOGY |
| 16 | SOCIETY AND ENVIRONMENT |
| 17 | DECISION ANALYSIS |
| 18 | COST FINDING AND CONTROL |
| 19 | MANAGEMENT POLICY |
| 20 | MANAGEMENT USES OF COMPUTERS |
| 21 | MICROECONOMICS |
| 22 | PERSONNEL MANAGEMENT & INDUSTRIAL RELATIONS |
| 23 | EDUCATIONAL PSYCHOLOGY |
| 24 | NAVY SCHOOL ADMINISTRATION |
| 25 | RESOURCES MANAGEMENT FOR DEFENSE |
| 26 | THE ADULT AS A LEARNER |
| 27 | FINANCIAL PLANNING AND CONTROL |

TABLE II

SUMMARY RESULTS OF FEEDBACK
NAVAL POSTGRADUATE SCHOOL
CURRICULAR OFFICERS AND ASSISTANT CURRICULAR OFFICERS

| COURSE I.D. | NUMBER OF WINS | NUMBER OF COMPARISONS | WIN PERCENTAGE | FINAL FORD WEIGHT |
|---|---|---|---|---|
| 3 | 205 | 226 | .90708 | 4.316538 |
| 1 | 205 | 227 | .90308 | 4.225978 |
| 14 | 199 | 223 | .89238 | 3.605972 |
| 8 | 199 | 223 | .89238 | 3.204845 |
| 23 | 195 | 221 | .88235 | 2.929440 |
| 11 | 181 | 225 | .80444 | 1.651132 |
| 15 | 172 | 227 | .75771 | 1.098152 |
| 26 | 152 | 230 | .66087 | 0.534148 |
| 24 | 144 | 226 | .63717 | 0.510759 |
| 5 | 118 | 206 | .57282 | 0.385287 |
| 17 | 110 | 228 | .48246 | 0.253929 |
| 16 | 99 | 233 | .42489 | 0.244910 |
| 7 | 93 | 225 | .41333 | 0.176567 |
| 10 | 97 | 228 | .42544 | 0.170443 |
| 19 | 99 | 233 | .42489 | 0.167027 |
| 22 | 96 | 234 | .41026 | 0.163109 |
| 2 | 90 | 232 | .38793 | 0.143596 |
| 6 | 84 | 230 | .36522 | 0.128150 |
| 9 | 75 | 224 | .33482 | 0.112615 |
| 20 | 75 | 234 | .32051 | 0.097331 |
| 4 | 71 | 227 | .31278 | 0.095305 |
| 27 | 65 | 212 | .30660 | 0.092319 |
| 18 | 53 | 211 | .25118 | 0.066721 |
| 25 | 51 | 228 | .22368 | 0.056831 |
| 21 | 43 | 229 | .18777 | 0.046496 |
| 12 | 36 | 225 | .16000 | 0.036548 |
| 13 | 36 | 250 | .14400 | 0.033543 |

Number of questionnaires distributed 26; Returned 10; Percent returned 38.46. 37 iterations were required to achieve rank order stability of the weights at the 0.005 convergence criterion. The ranking procedure required 19.69 seconds of Central Processing Unit (CPU) time.

TABLE III

SUMMARY RESULTS OF FEEDBACK
COMMANDING OFFICERS

| COURSE I.D. | NUMBER OF WINS | NUMBER OF COMPARISONS | WIN PERCENTAGE | FINAL FORD WEIGHT |
|---|---|---|---|---|
| 14 | 79 | 100 | 0.79000 | 1.680411 |
| 23 | 71 | 92 | 0.77174 | 1.481627 |
| 3 | 71 | 96 | 0.73958 | 1.285174 |
| 15 | 76 | 103 | 0.73786 | 1.280201 |
| 11 | 68 | 96 | 0.70833 | 1.166492 |
| 8 | 72 | 101 | 0.71287 | 1.097096 |
| 26 | 55 | 86 | 0.63953 | 0.766475 |
| 24 | 65 | 105 | 0.61905 | 0.723738 |
| 17 | 30 | 46 | 0.65217 | 0.654625 |
| 2 | 41 | 64 | 0.64063 | 0.651626 |
| 5 | 61 | 101 | 0.60396 | 0.640907 |
| 1 | 55 | 98 | 0.56122 | 0.547941 |
| 20 | 40 | 84 | 0.47619 | 0.339219 |
| 16 | 41 | 87 | 0.47126 | 0.328106 |
| 19 | 32 | 77 | 0.41558 | 0.256817 |
| 10 | 35 | 90 | 0.38889 | 0.232185 |
| 22 | 30 | 73 | 0.41096 | 0.230710 |
| 9 | 26 | 76 | 0.34211 | 0.153308 |
| 25 | 24 | 81 | 0.29630 | 0.149342 |
| 21 | 13 | 49 | 0.26531 | 0.094227 |
| 12 | 17 | 42 | 0.27419 | 0.088119 |
| 13 | 15 | 61 | 0.24590 | 0.084077 |
| 27 | 13 | 51 | 0.25490 | 0.081561 |
| 7 | 17 | 76 | 0.22368 | 0.079651 |
| 6 | 14 | 65 | 0.21538 | 0.077033 |
| 4 | 14 | 89 | 0.15730 | 0.053330 |
| 18 | 10 | 61 | 0.16393 | 0.046161 |

Number of possible CO respondents 41; Returned 7; Percent Returned 17.07. 16 iterations were required to achieve rank order stability of the weights at the 0.005 convergence criterion.
The ranking procedure required 13.48 seconds of CPU time.

TABLE IV

SUMMARY RESULTS OF FEEDBACK
NAVAL RESERVE OFFICER TRAINING UNITS

| COURSE I.D. | NUMBER OF WINS | NUMBER OF COMPARISONS | WIN PERCENTAGE | FINAL FORD WEIGHT |
|---|---|---|---|---|
| 1 | 210 | 245 | .85714 | 2.470793 |
| 3 | 178 | 223 | .79821 | 1.657306 |
| 8 | 188 | 251 | .74900 | 1.276756 |
| 5 | 186 | 251 | .74104 | 1.235468 |
| 26 | 168 | 231 | .72727 | 1.084950 |
| 16 | 169 | 252 | .67063 | 0.844485 |
| 23 | 168 | 251 | .66932 | 0.840512 |
| 14 | 162 | 246 | .65854 | 0.752265 |
| 24 | 166 | 260 | .63846 | 0.740750 |
| 15 | 156 | 252 | .62651 | 0.680908 |
| 11 | 119 | 193 | .60715 | 0.634259 |
| 2 | 139 | 253 | .54941 | 0.507699 |
| 19 | 134 | 251 | .53386 | 0.463134 |
| 22 | 119 | 230 | .51739 | 0.422444 |
| 6 | 113 | 253 | .44664 | 0.308078 |
| 10 | 111 | 255 | .43529 | 0.286387 |
| 17 | 104 | 254 | .40945 | 0.257710 |
| 9 | 96 | 258 | .37209 | 0.213833 |
| 4 | 88 | 257 | .34241 | 0.192955 |
| 25 | 81 | 239 | .33891 | 0.184540 |
| 20 | 79 | 239 | .33054 | 0.176754 |
| 7 | 67 | 233 | .28755 | 0.144743 |
| 21 | 63 | 235 | .26809 | 0.129106 |
| 13 | 61 | 238 | .25630 | 0.120399 |
| 18 | 66 | 263 | .25095 | 0.114519 |
| 27 | 59 | 239 | .24686 | 0.111100 |
| 12 | 45 | 238 | .18908 | 0.078464 |

Number of possible respondents 24; Returned 15; Percent returned 62.50. Two returns were considered to be invalid since they were scored by students.
21 iterations were required to achieve rank order stability of the weights at the 0.005 convergence criterion.
The ranking procedure required 11.07 seconds of CPU time.

TABLE V

SUMMARY RESULTS OF FEEDBACK
OFFICER DEVELOPMENT SCHOOLS

| COURSE I.D. | NUMBER OF WINS | NUMBER OF COMPARISONS | WIN PERCENTAGE | FINAL FORD WEIGHT |
|---|---|---|---|---|
| 3 | 109 | 123 | .88618 | 3.300036 |
| 8 | 85 | 104 | .81731 | 1.988706 |
| 24 | 96 | 118 | .81356 | 1.943721 |
| 14 | 87 | 121 | .71901 | 1.066749 |
| 16 | 74 | 103 | .71845 | 1.044002 |
| 23 | 83 | 117 | .70940 | 0.987706 |
| 1 | 80 | 119 | .67227 | 0.847914 |
| 11 | 83 | 125 | .66400 | 0.744778 |
| 15 | 75 | 121 | .61983 | 0.615233 |
| 26 | 66 | 109 | .60550 | 0.594165 |
| 17 | 64 | 105 | .60952 | 0.577893 |
| 10 | 63 | 108 | .58333 | 0.528972 |
| 2 | 63 | 120 | .52500 | 0.458015 |
| 19 | 51 | 104 | .49038 | 0.358326 |
| 22 | 45 | 93 | .48387 | 0.299894 |
| 6 | 49 | 106 | .46226 | 0.299802 |
| 20 | 43 | 116 | .37069 | 0.200223 |
| 5 | 38 | 95 | .40000 | 0.199233 |
| 4 | 42 | 114 | .36842 | 0.176270 |
| 9 | 39 | 118 | .33051 | 0.135592 |
| 27 | 35 | 119 | .29412 | 0.111491 |
| 18 | 25 | 98 | .25510 | 0.090934 |
| 7 | 25 | 108 | .23148 | 0.083943 |
| 12 | 27 | 115 | .23478 | 0.083023 |
| 25 | 25 | 106 | .23585 | 0.077149 |
| 21 | 19 | 108 | .17593 | 0.055929 |
| 13 | 5 | 99 | .05051 | 0.012558 |

Number of possible respondents 54; Returned 7; Percent returned 12.96.
26 iterations were required to achieve rank order stability of the weights at the 0.005 convergence criterion.
The ranking procedure required 14.02 seconds of CPU time.

TABLE VI

SUMMARY RESULTS OF FEEDBACK
U. S. NAVAL ACADEMY

| COURSE I.D. | NUMBER OF WINS | NUMBER OF COMPARISONS | WIN PERCENTAGE | FINAL FORD WEIGHT |
|---|---|---|---|---|
| 8 | 121 | 164 | .73780 | 1.236354 |
| 1 | 91 | 129 | .70543 | 1.101631 |
| 23 | 94 | 141 | .66667 | 0.900810 |
| 11 | 96 | 145 | .66207 | 0.862586 |
| 3 | 107 | 165 | .64848 | 0.813618 |
| 15 | 101 | 157 | .64331 | 0.784350 |
| 14 | 108 | 178 | .60674 | 0.670959 |
| 26 | 79 | 137 | .57664 | 0.612974 |
| 24 | 95 | 168 | .56548 | 0.586259 |
| 5 | 93 | 168 | .55357 | 0.559812 |
| 12 | 92 | 171 | .53801 | 0.538462 |
| 20 | 79 | 154 | .51299 | 0.498974 |
| 7 | 90 | 177 | .50847 | 0.485344 |
| 2 | 93 | 182 | .51099 | 0.478039 |
| 22 | 93 | 180 | .51667 | 0.477219 |
| 10 | 59 | 116 | .50862 | 0.462774 |
| 16 | 63 | 131 | .48092 | 0.424771 |
| 6 | 65 | 143 | .45455 | 0.383703 |
| 17 | 72 | 161 | .44720 | 0.379455 |
| 4 | 68 | 164 | .41463 | 0.326515 |
| 9 | 64 | 167 | .38323 | 0.290489 |
| 25 | 63 | 167 | .37725 | 0.273699 |
| 13 | 50 | 139 | .35971 | 0.270171 |
| 19 | 52 | 168 | .30952 | 0.203258 |
| 21 | 45 | 160 | .28125 | 0.188247 |
| 18 | 41 | 143 | .28671 | 0.186378 |
| 27 | 42 | 157 | .26752 | 0.169560 |

Number of questionnaires distributed 10; Returned 9; Percent returned 90.00.
11 iterations were required to achieve rank order stability of the weights at the 0.005 convergence criterion.
The ranking procedure required 14.77 seconds of CUP time.

TABLE VII

SUMMARY RESULTS OF FEEDBACK
ENLISTED TRAINING ACTIVITIES

| COURSE I.D. | NUMBER OF WINS | NUMBER OF COMPARISONS | WIN PERCENTAGE | FINAL FORD WEIGHT |
|---|---|---|---|---|
| 8 | 296 | 345 | .85797 | 2.663724 |
| 14 | 286 | 343 | .83382 | 2.129391 |
| 3 | 287 | 346 | .82948 | 2.058448 |
| 1 | 284 | 346 | .82081 | 2.022306 |
| 24 | 266 | 327 | .81346 | 1.876370 |
| 23 | 277 | 345 | .80290 | 1.788529 |
| 15 | 275 | 346 | .79480 | 1.581438 |
| 11 | 254 | 350 | .72571 | 1.028997 |
| 5 | 248 | 348 | .71264 | 0.944690 |
| 26 | 200 | 361 | .55402 | 0.400837 |
| 19 | 188 | 353 | .53258 | 0.370832 |
| 2 | 149 | 302 | .49338 | 0.259167 |
| 22 | 140 | 322 | .43478 | 0.214820 |
| 17 | 156 | 363 | .42975 | 0.205436 |
| 20 | 149 | 363 | .41047 | 0.185172 |
| 16 | 145 | 359 | .40390 | 0.177973 |
| 6 | 130 | 334 | .38922 | 0.165168 |
| 10 | 133 | 358 | .37151 | 0.141526 |
| 4 | 121 | 366 | .33060 | 0.115204 |
| 25 | 101 | 346 | .29191 | 0.090942 |
| 9 | 102 | 355 | .28732 | 0.090942 |
| 7 | 65 | 306 | .21242 | 0.054764 |
| 27 | 65 | 307 | .21173 | 0.051586 |
| 12 | 56 | 298 | .18792 | 0.048452 |
| 18 | 46 | 300 | .15333 | 0.035814 |
| 13 | 28 | 218 | .12844 | 0.027207 |
| 21 | 27 | 241 | .11203 | 0.023123 |

Number of possible respondents 72; Identified returns 19;
Percent identified 26.39.
25 iterations were required to achieve rank order stability
of the weights at the 0.005 convergence criterion.
The ranking procedure required 23.63 seconds of CPU time.

TABLE VIII

SUMMARY RESULTS OF FEEDBACK
ALL RESPONDENTS

| COURSE I.D. | NUMBER OF WINS | NUMBER OF COMPARISONS | WIN PERCENTAGE | FINAL FORD WEIGHT |
|---|---|---|---|---|
| 3 | 1537 | 1918 | .80136 | 1.722615 |
| 1 | 1499 | 1908 | .78564 | 1.587810 |
| 8 | 1500 | 1938 | .77399 | 1.470757 |
| 23 | 1453 | 1920 | .75677 | 1.324778 |
| 14 | 1465 | 1976 | .74140 | 1.214996 |
| 15 | 1353 | 1973 | .68576 | 0.909438 |
| 11 | 1283 | 1912 | .67103 | 0.857967 |
| 24 | 1302 | 1967 | .66192 | 0.830509 |
| 26 | 1260 | 1907 | .66072 | 0.819171 |
| 5 | 1125 | 1925 | .58442 | 0.578209 |
| 16 | 987 | 1891 | .52195 | 0.427152 |
| 2 | 894 | 1829 | .48879 | 0.372401 |
| 10 | 873 | 1843 | .47368 | 0.342309 |
| 19 | 891 | 1934 | .46070 | 0.327925 |
| 17 | 829 | 1879 | .44119 | 0.302511 |
| 22 | 789 | 1811 | .43567 | 0.287717 |
| 20 | 775 | 1860 | .41667 | 0.269160 |
| 6 | 731 | 1815 | .40275 | 0.249871 |
| 9 | 706 | 1896 | .37236 | 0.215380 |
| 4 | 638 | 1834 | .34787 | 0.190409 |
| 25 | 526 | 1813 | .29013 | 0.142160 |
| 7 | 444 | 1639 | .27090 | 0.127372 |
| 12 | 443 | 1619 | .27363 | 0.127214 |
| 18 | 424 | 1612 | .26303 | 0.117517 |
| 27 | 389 | 1647 | .23619 | 0.101637 |
| 21 | 265 | 1483 | .17869 | 0.071352 |
| 13 | 245 | 1503 | .16301 | 0.063902 |

Number of possible respondents 196; Returned 108; Percent returned 55.10.
Five returns included comments but no rankings; two returns were considered invalid since they were scored by NROTC students.
16 iterations were required to achieve rank order stability of the weights at the 0.005 convergence criterion.
The ranking procedure required 1 minute 21.52 seconds of CPU time.

TABLE IX

COMPARATIVE COURSE RANKINGS BY COURSE I.D. NUMBER

| COURSE RANK | *NPS | *CO | *NROTC | *ODS | *USNA | *ETA | COMPOSITE RANKING |
|---|---|---|---|---|---|---|---|
| 1 | 3 | 14 | 1 | 3 | 8 | 8 | 3 |
| 2 | 1 | 23 | 3 | 8 | 1 | 14 | 1 |
| 3 | 14 | 3 | 8 | 24 | 23 | 3 | 8 |
| 4 | 8 | 15 | 5 | 14 | 11 | 1 | 23 |
| 5 | 23 | 11 | 26 | 16 | 3 | 24 | 14 |
| 6 | 11 | 8 | 16 | 23 | 15 | 23 | 15 |
| 7 | 15 | 26 | 23 | 1 | 14 | 15 | 11 |
| 8 | 26 | 24 | 14 | 11 | 26 | 11 | 24 |
| 9 | 24 | 17 | 24 | 15 | 24 | 5 | 26 |
| 10 | 5 | 2 | 15 | 26 | 5 | 26 | 5 |
| 11 | 17 | 5 | 11 | 17 | 12 | 19 | 16 |
| 12 | 16 | 1 | 2 | 10 | 20 | 2 | 2 |
| 13 | 7 | 20 | 19 | 2 | 7 | 22 | 10 |
| 14 | 10 | 16 | 22 | 19 | 2 | 17 | 19 |
| 15 | 19 | 19 | 6 | 22 | 22 | 20 | 17 |
| 16 | 22 | 10 | 10 | 6 | 10 | 16 | 22 |
| 17 | 2 | 22 | 17 | 20 | 16 | 6 | 20 |
| 18 | 6 | 9 | 9 | 5 | 6 | 10 | 6 |
| 19 | 9 | 25 | 4 | 4 | 17 | 4 | 9 |
| 20 | 20 | 21 | 25 | 9 | 4 | 25 | 4 |
| 21 | 4 | 12 | 20 | 27 | 9 | 9 | 25 |
| 22 | 27 | 13 | 7 | 18 | 25 | 7 | 7 |
| 23 | 18 | 27 | 21 | 7 | 13 | 27 | 12 |
| 24 | 25 | 7 | 13 | 12 | 19 | 12 | 18 |
| 25 | 21 | 6 | 18 | 25 | 21 | 18 | 27 |
| 26 | 12 | 4 | 27 | 21 | 18 | 13 | 21 |
| 27 | 13 | 18 | 12 | 13 | 27 | 21 | 13 |

* Column Codes:

NPS: Naval Postgraduate School Curricular Officers
CO: Commanding Officers
NROTC: Naval Reserve Officer Training Units
ODS: Officer Development Schools
USNA: U. S. Naval Academy
ETA: Enlisted Training Activities

## V. THE ALTERNATIVES

The unparalleled rate of technological change and advancement of knowledge which work as catalysts to produce the Navy's critical shortages of skilled manpower have already been reviewed. Because of these factors, specific learned skills and competences can be rendered obsolete in a relatively short period of time. This presents a special problem for educators, i.e., how to manage the educational process in the face of so much complexity and so rapid a rate of change. Many educators have urged that schools adopt new principles to accommodate the problem. Basically, they recommend a shift from teaching pure facts and statistics to an objective of preparing students to make the best use of their own mental resources (Carrison, 1968, p. 183). With regard to the Navy, Carrison wrote, "Teaching principles and skills of enduring value that will help the student to meet changes with wisdom and reasoning is one of the aims of the Navy . . . (p. 183)."

In the case of the student, the problem is three-fold. The student questions not only how he will learn during his time in school, but also what he will learn and of what relevance the material is to him. If the student accepts the formal curriculum and the course descriptions found in the school catalogue, then he may generally infer the answers to his questions. However, B. R. Snyder implies that the how, what, and relevance encompass something more.

Snyder describes them as, "These covert, inferred tasks," and goes on to say that the, "means to their mastery, are linked together in a hidden curriculum. They are rooted in the professor's assumptions and values, the students' expectations, and the social context in which both teacher and taught find themselves (Snyder, 1971, p. 4)." Because of the pressures of the hidden curriculum, the students consistently redefine the tasks of the formal curriculum.

In Chapter II of this paper, two activities identified in Chief of Naval Training Staff Project I-2 were further identified as the basic subjects of this paper. These activities were the documenting of the training/education skills required by the T/E subspecialist and defining an educational program to support the subspecialty. The skills, represented by typical academic courses, were documented through the use of a survey questionnaire and identified in Chapter III. The problem now becomes to blend those skill requirements together into a meaningful formal academic curriculum, one which supports the subspecialty and also takes into account the pressures of Snyder's "hidden curriculum." It is not too difficult to identify and teach the special professional skills required of a training/education management subspecialist, but that is short-ranged compared to the more profound task of making the curriculum one of enduring value; one that will enable the student to face future situations with wisdom and reasoning. The curriculum must be sufficiently encompassing to

provide the necessary tools to the T/E subspecialist but it must not be so overloaded that it stifles creativity. The administrators and teachers must insure that they produce a good product . . . that is, a training/education subspecialist competent to assume the responsibility for managing the Navy's many and varied training activities.

The necessity exists to avoid a cut and paste construction of a new curriculum in the mold of existing patterns. However, like many educators, curriculum developers are subject to "bandwagonism". "Too many feel that it is better to stay safe, to make a catalogue study of offerings, and to hew to the line (Brazziel, 1966, p. 336)." Over reliance on past experience as a basis for a new program must also be avoided. The pace of change and technological advancement has accelerated to the point that zealous utilization of past experience to maintain continuity in an academic program or foster innovation has become dangerous. More than past experience, educators responsible for curriculum development require long-term forecasts from the ultimate users of their product (the T/E subspecialist) to apply in a continuing program of curriculum development and revision to support the user's needs. The Naval Postgraduate School enjoys a unique advantage in that regard since it basically serves a single user, the Navy/Marine Corps. Direct, daily contact with the user is always available and the student body provides a second source of perceived long-range needs of the user.

A second factor to be considered in the construction of the T/E subspecialty curriculum is the volume of knowledge to be offered. Under conditions of rapid technological change and growth of knowledge, the effort to produce competent graduates often engenders a maximum effort to transmit exceedingly large amounts of skill and knowledge. As the volume of knowledge organized in the curriculum grows, it begins to more and more encroach upon the student's time to develop or pursue his own intellectual interests, even when they are related to his professional training. In addition, and sometimes more importantly to the student, the volume of knowledge begins to encroach upon the student's limited supply of leisure time. This may not sound important at the Naval Postgraduate School where as indicated in its catalogue, "Officer students have no major duties beyond applying themselves diligently to their studies. It is expected that (officer) students will maintain a high level of scholarship and develop attributes which are associated with a scholar seeking knowledge and understanding (Catalogue, 1972, p. 17)." However, what the Catalogue does not take into account is that NPS is a shore duty assignment for the officer student. And, for many of those officer students, the assignment comes after many long and arduous months spent at sea. For example, consider the officer coming to NPS from a carrier that has just completed two cruises of a minimum of 9 months each to the Western Pacific in a period of 24-30 months. Or a nuclear submarine

officer from an SSN attack submarine where 2-3 sixty day patrols are normal during a year of operations. These officers may be extremely pleased with orders to NPS and the opportunity to increase their professional knowledge and intellect, but they are also pleased with the idea of being able to spend some leisure time with their family.

Work overload and the expropriation of leisure time is, according to Snyder, recognized by most educators. "Whatever the nominal number of credit hours assigned to courses they inexorable increase their content to fill, and more than fill, the student's day (Snyder, p. 70)." At least some educators see the curriculum as directly antithetical to the qualities of mind of a creative scholar. They see overload as incompatible with the cultivation of creative capacities and yet required by the increasing volumes of knowledge needed for competence. There are other educators, however, that see first rate students proving themselves despite the constraints of the curriculum and work overload. From their perspective, the overload of the curriculum is a paradox representing on the one hand the product of the pressure for competence, and, on the other hand, an obstacle to competence at its highest level of performance (Snyder, pp. 70-78).

Before turning to the task of putting together a supporting curriculum for the Navy's training and education subspecialty, one additional factor must be considered. The Navy requires management and executive talent. That is not to say that naval officers do not

require a strong foundation in basic scientific and engineering principles. That foundation is required since continuous technological advance is a daily part of the every day life of a naval officer. However, equally as important as their technical knowledge is the ability of officers to communicate and/or exchange their ideas and knowledge accurately with others, to examine alternatives, and to make sound, logical decisions. This ability to solve the unknown problems of the future involving the management functions of planning, organizing, directing, coordinating and controlling activities in which the Navy's resources of men, money, and materials are involved, is considered more necessary by many naval educators than the successful learning of rote skills (Carrison, pp. 183-184).

For the Superintendent, Naval Postgraduate School, to be authorized to award the Master of Science Degree in Management to a candidate completing a curriculum supporting the Training/Education Management Subspecialty, the curriculum must meet the standards of the Schools' Academic Council. Specifically, the curriculum must conform to current practice in accredited institutions and contain a well-defined major. The general Naval Postgraduate School minimum requirements are as follows:

A. 32 quarter hours of graduate level credits
(The level of academic credit is assigned
by course numbers. 3000-3999 courses

are assigned Upper-division or graduate credit; 4000-4999 courses are assigned graduate credit.)

B. A thesis or its equivalent. If the thesis is waived, at least eight quarter hours of approved courses 4000-4999 shall be substituted for it.

C. One academic year in residence.

D. Departmental requirements for the degree in a specific subject (Catalogue, pp. 16-18).

The departmental requirements for the Master of Science Degree in Management include satisfactory completion of:

A. the requirements for the degree of Bachelor of Science in Management or the equivalent.

B. a minimum of fifty-two (52) quarter hours of graduate level work, including at most eight (8) hours of thesis credit.

C. a minimum of sixteen (16) quarter hours (of the above 52 hours) in courses at the 4000 level.

D. an approved sequence of course work in the area of specialization (T/E-Management).

E. an acceptable thesis on a topic approved by the Department of Operations Research and

Administrative Sciences. This thesis is considered equivalent to eight (8) hours of graduate level course work. (Unpublished departmental requirements for the degree Master of Science in Management).

In putting together a specific supporting curriculum for the training/education management subspecialty, two alternatives have been considered. The first alternative describes a unique curriculum suitable for incorporation into the academic programs offered at the Naval Postgraduate School or at a civilian university. The second alternative involves the designation of a new option, Training/Education Management, to the (817) Management Curriculum at the Naval Postgraduate School. Both alternatives are constructed to satisfy the requirements stated above for the degree of Master of Science in Management and a "P" Code (P9630) signifying a master's level of education in accordance with OPNAV INSTRUCTION 1211.6D. The course titles included in the two alternatives are those utilized in the survey questionnaire to determine the skills necessary to the T/E subspecialist. While the final courses in the actual supporting curriculum may not carry the same titles, they should cover the same skill areas.

Alternative ONE: This curriculum represents a unique effort to support the Training/Education Management Subspecialty. All of the

courses included were selected on the basis of the results of the questionnaire survey. The format and number of courses included were determined by the constraints of fitting into a six quarter academic program and meeting the academic requirements for a Master's Degree. The one exception, based on the results of the survey, is the absence of a course in Economics. Time has been alloted to the preparation of a thesis in order to satisfy the departmental requirement at the Naval Postgraduate School. Time has also been alloted for student electives in an effort to permit the student to cultivate his creative capacity in a direction of his own choice while still meeting degree requirements in his subspecialty.

| QUARTER | ACADEMIC LEVEL | COURSE TITLE |
|---|---|---|
| I | 2XXX | Quantitative Methods for Management I |
| | 2XXX | Fundamentals of Education |
| | 3XXX | Individual and Group Behavior |
| | 3XXX | Management Uses of Computers |
| II | 3XXX | Quantitative Methods for Management II |
| | 3XXX | Society and Environment |
| | 3XXX | Educational Psychology |
| | 3XXX | Cost Finding and Control |
| | Non-credit | COBOL Programming (NPS requirement) |

| QUARTER | ACADEMIC LEVEL | COURSE TITLE |
|---|---|---|
| III | 4XXX | Curriculum Development |
| | 3XXX | Educational Measurement |
| | 3XXX | Organization and Management |
| | 3XXX | Decision Analysis |
| IV | 3XXX | Operations Research |
| | 4XXX | Personnel Training and Development |
| | 4XXX | Educational Technology |
| | 3XXX/ 4XXX | Elective in Personnel/Education area |
| V | 3XXX | Naval School Administration |
| | 4XXX | Personnel Management and Industrial Relations |
| | 4XXX | Elective in Personnel/Education area |
| | 0810 | Thesis (in area of specialization) |
| VI | 4XXX | Management Policy |
| | 4XXX | Elective in Personnel/Education area |
| | 4XXX | Elective |
| | 0810 | Thesis |

Alternative TWO: This curriculum represents a new option, Training/Education Management, to the (817) Management Curriculum at the Naval Postgraduate School. The courses were selected to

include as many as possible from the survey results while meeting the core requirements of the NPS (817) curriculum. The format and number of courses, the thesis slots, and the electives were alloted in accordance with the same criteria applied in Alternative ONE.

| QUARTER | ACADEMIC LEVEL | COURSE TITLE |
|---|---|---|
| I | 2XXX | Quantitative Methods for Management I |
| | 3XXX | Cost Finding and Control |
| | 3XXX | Management Uses of Computers |
| | 3XXX | Individual and Group Behavior |
| II | 3XXX | Quantitative Methods for Management II |
| | 3XXX | Survey of Economic Theory |
| | 3XXX | Society and Environment |
| | 3XXX | Organization and Management |
| | Non-credit | COBOL programming |
| Select program option (T/E Management) between Quarters II and III | | |
| III | 4XXX | Personnel Management and Industrial Relations |
| | 3XXX | Resource Management for Defense |
| | 3XXX | Educational Measurement |
| | 3XXX | Educational Psychology |

| QUARTER | ACADEMIC LEVEL | COURSE TITLE |
|---|---|---|
| IV | 4XXX | Curriculum Development |
| | 3XXX | Decision Analysis |
| | 3XXX | Operations Research |
| | 3XXX/ 4XXX | Elective in Personnel/Education area |
| V | 3XXX | Systems Analysis |
| | 4XXX | Educational Tcchnology |
| | 4XXX | Elective in Personnel/Education area |
| | 0810 | Thesis (in arca of specialization) |
| VI | 4XXX | Management Policy |
| | 3XXX | Navy School Administration |
| | 4XXX | Elective |
| | 0810 | Thesis |

In order to adcquately support the T/E subspccialty and include the maximum numbcr of courses (skills) perccived as neccssary by the qucstionnaire respondents, Alternativc TWO proposes threc significant deviations from thc present NPS (817) Managcment Curriculum. These dcviations includc: first, covcring the financial managcment and cconomics coursc rcquircments with one coursc (four graduate credit hours) in cach area vice two courses (eight graduatc credit hours); second, thrcc vicc four Elcctivc slots; and

third, two vice three Thesis slots. All of the (817) core courses have been included with one exception, Management Science I has been replaced by Educational Measurement.

Two courses perceived as necessary by the survey respondents were not included in either alternative due to the necessity of meeting constraints on curriculum length and degree requirements. These courses, the Adult as a Learner (I.D. #26) and Interdisciplinary Seminar (I.D. #10), are recommended as electives for the T/E management subspecialist option. Additional recommended electives include courses covering:

Fundamentals of Education

Social Sciences Research Theory and Methods

Instructional Technology

Training Methodology

Training Systems Analysis

Human Resources Planning and Research

Personnel Training and Development

The Psychology and Management of Resistance to Change

Behavior Modification

Personnel Motivation

Personal Counseling

Seminar in Perception

Seminar in Attitude Formation and Change

Culture and Race

Basic Sociology

Sociology of Organizations

Organization Theory

Communication Theory and Practice in Organizations

Organizational Behavior and Administration

Planning and Control

Organization Development

Selected Topics in Behavioral Sciences and Administration

In selecting any course for inclusion as a curriculum requirement or recommended elective its future relevance and contribution to the improved performance of the training/education management subspecialist must be considered. The courses included in the two alternatives were perceived by the survey respondents as meeting the test of relevancy. The recommended electives represent a composite of additional courses suggested by the survey respondents via their personal comments sheets and courses recommended as personnel management option courses at the Naval Postgraduate School.

## VI. CONCLUSIONS

Whether concerned with developing or redesigning a curriculum, one's effort must center upon justifying the curriculum content. What purposes must the curriculum serve? In the case of the supporting curriculum for the T/E management subspecialty, the curriculum must serve a dual purpose. It must support the building of a solid foundation in the educational discipline while adding to the purely management skills of the subspecialist. Traditionally then, it would appear appropriate to pour into the T/E subspecialist all of the available knowledge so that he could graduate in possession of the requisite knowledge and skills of his career-pointed subspecialty. However, as expressed in the lyrics of a song popular in the late sixties, "The times they are a'changing". It is no longer possible to solely approach things in the traditional manner. Admiral Calvert expressed it very succinctly when he wrote, "Tradition is important but it must act as a backdrop to our thinking, not a substitute for it (p. 151)."

As has been emphasized repeatedly in previous chapters, the amount of available knowledge significant to any one subspecialty today has grown so tremendously that it is impossible to acquaint the student with all of it. Technological advances in many areas cause specific training to become obsolete too rapidly. As a result,

the more innovative educational institutions, sensing the rapidity with which obsolescence occurs, have begun to direct their efforts at producing graduates that are prepared to continue acquiring knowledge after graduation rather than producing "finished practitioners" in their area of specialization (Henderson, 1968, p. 281). In other words, the more innovative institutions are attempting to minimize the teaching of transitory knowledge for knowledge of more lasting value. So it is that the T/E subspecialist must be able to identify a problem, research the available knowledge relating to it, make decisions regarding its alternative solutions, and on a continuum keep abreast of new ideas and techniques as they become available. Flexibility and innovation must be considered as objectives of any educational program. And, the tendency towards initial resistance to new innovations must be replaced by an objective response to the challenge of moving ahead. In including a particular course or discipline in a new or revised curriculum, an appropriate question might be, "Is the basis for including this course today a function of what the student was required to know yesterday or is it what he must know tomorrow?".

Regarding the Navy and society, RADM Calvert wrote, "The Navy is shaped by the society it exists to defend, as that society evolves ever more swiftly, it depends more and more upon education to solve its problems. So, inevitably, does the Navy (p. 89)." Somewhat analogous to Calvert's remarks were those of Bruner with regard to

a curriculum, ". . . a curriculum reflects not only the nature of knowledge itself but also the nature of the knower and of the knowledge-getting process . . . we teach a subject not to produce little living libraries on that subject, but rather to get a student to think . . ., to take part in the process of knowledge-getting (Bruner, 1966, p. 72)." So it is that the supporting curriculum for the T/E subspecialist must match together the needs of the Navy's training community wherein he will serve and the educational content that will stimulate his lasting interest in achieving more knowledge in his area of specialization. Too often educators involved in curriculum development err in their thinking by making the objective of their efforts the education process itself. It is imperative, if the education process is in fact the objective, for that objective to be reordered to one of preparing the student for a sound and self-fulfilling career. Only when the curriculum is focused on the student and his preparation for improved performance and career development will the final results be sound (Morse, 1971, p. 15).

As outlook and objectives change, so must educational programs. Henderson views revisions of curriculum as including four general types: "liberalization, including greater emphasis on theory and on the basic sciences; an interweaving of the basic courses and the professional experiences; interdisciplinary seminars and options; and new courses, seminars, and concentrations for students (p. 291)."

Liberalizing the curriculum makes good sense for the cultural advantage it provides. However, curriculum development utilizing reasoned principles and directed toward reasoned goals in liberal learning is a three-fold challenge of the highest order. First, there is the great challenge of trying to get the faculty to agree on a syllabus of diverse experiences based on reason. Second, there is the challenge of constant stimulation and revision. Third, and most important, is the challenge of truely following reason to produce a unique curriculum (Brazziel, pp. 291-292).

To achieve a proper blend of courses and professional experiences, the product user must clearly indicate as objectives the values and competencies required of the subspecialist. In fact, "stating the objectives of the educational program, . . . is where curriculum planning actually begins (Lee, 1966, p. 355)." The curriculum developer can then set about working with experts in all disciplines to provide the students with experiences that will develop the requisite values and competencies while remaining within the limitations of time, facilities, manpower, and the abilities of the students.

When implementing the concepts of change expressed above, it becomes necessary for the various academic disciplines to draw more closely together. "In relating to man and society, the behavioral and biological sciences become essential as foundations (Henderson, p. 291)." However, design, data-processing, and developmental

procedures so common to the technical disciplines permeate and become common to all; and, "opportunities occur for close collaboration (Henderson, p. 291)." Some interesting approaches are possible as a result of such collaboration. "Who would have thought in years gone by . . ." writes Brazziel, ". . . that economics, sociology, and psychology would lie down together in a cross-disciplinary social science course (p. 338)." The growth of knowledge requires curriculum developers to take account of the new structure of knowledge, "the ordering of the various intellectual disciplines into some coherent hierarchy or pattern either by subject matter or by modes of inquiry (Lee, p. 348)." Thus are the new outlooks and objectives of curriculum design a result of serious attempts at a more complete development of the student.

In providing for new courses, seminars, and concentrations for students an effort must be directed at securing, ". . . better integration between the liberal education content and the professional, by harmonizing them and arranging a better sequence of studies (Henderson, p. 292)." To improve student motivation and morale, unnecessary duplication between courses must be eliminated. The traditional classification of disciplines must be re-examined and re-formulated into broad subject-matter areas. Introductory courses must be scrutinized to see if they fit logically within the desired knowledge structure in order that they not become terminal, i.e.,

"starting from nowhere and ending nowhere. Introductory courses must be a basis for the development of further inquiry and knowledge (Lee, p. 359)." At the same time, advanced courses must not be judged simply on the basis of being more difficult, but because they require, ". . . a more sophisticated or mature conceptual analysis of the discipline and a more abstract mode of inquiry (Lee, p. 359)." Finally, courses designed to force memorization of transitory facts, the relevance of which is not readily apparent to the student, must be eliminated. The courses must involve the students daily in a developmental experience that has a lasting impact.

Considering the new outlooks and objectives of curriculum development, which is the best of the two alternatives presented in Chapter V to support the new training/education management subspecialty? The original hypothesis of the paper was to prove or disprove the conclusion that subspecialties should, if they are to be represented by naval officers of proven academic expertise, be supported by their own unique academic curriculum. Each of the alternatives was developed to include courses (representing subject areas) perceived as necessary by the results of a survey of the Navy training community. In actuality, the discipline coverage of each alternative is very similar. Alternative ONE, the unique T/E curriculum, fails to include Systems Analysis, Survey of Economic Theory, and Resources Management for Defense which are included

in Alternative TWO. Comparatively, Alternative TWO, considering the three significant deviations from the current (817) management curriculum presented in Chapter V, fails to include only Fundamentals of Education and Personnel Training and Development from Alternative ONE. Although subjective assessments leave much to be desired in selecting a curriculum, the resulting similarity in the two alternatives proposed and the lack of official policy for future utilization of the T/E subspecialty are cause not to accept the stated hypothesis. The recommendation is therefore to utilize Alternative TWO, the core curriculum. This recommendation further satisfies the current requirement of the Chief of Naval Training that primary P-level inputs to the T/E subspecialty should come from officers with Master's degrees in Management; initially from the Personnel Management option, and then from a T/E management option when a curriculum is developed through modification of the (817) Management Curriculum at NPS (Vernam "B", 1973). At such time as the official documentation of objectives and details of the subspecialty are recorded and the initial feedback from designated subspecialists is received, a unique curriculum may be warranted.

Utilization of a core of subject matter which all students complete, regardless of their choice of subspecialty, is one way to achieve unity within a curriculum and at the same time to prepare for versatility. The core should, however, occupy only a portion of the student's

time. In innovative educational institutions, the core possesses, " . . . a high degree of flexibility, producing versatility in the student's attitude" towards his chosen area of specialization (Henderson, p. 292-293). Core flexibility permits the development of a subspecialty around the student's interests and potential, and also permits the student a considerable range of choice among electives. The core also enables the student to expend original thought in problem solving through the pursuit of research problems of his own planning, subject to faculty approval. Lastly, the core helps to prevent overloading the student which deprives him of his free time, stifles his initiative, and keeps him from thinking. Giving the student more freedom for initiative and responsibility has as its objective deepening the opportunity for student learning, not to dilute it (Henderson, p. 293-296).

Of course, utilization of the core concept is not without disadvantage. According to Brazziel, "In too many colleges, common cores have been divided - exactly separate and exactly equal - among the feudal barons of the major disciplines, with the administration sitting nervously in the middle (p. 338)." However, innovative educational institutions can overcome the disadvantage of interdisciplinary conflict. "The more honest efforts will first delineate the values and competencies to be developed, and next, set about developing the learnings to be mastered. Then the question of who will teach the students must (can) be considered in depth (Brazziel, p. 338)."

At the Naval Postgraduate School, course offerings and schedules are arranged to take care of each student enrolled, assuring him of the most appropriate sequence of courses, and the shortest possible time in residence (McNitt, 1970, p. 71). As in other innovative schools, the (817) Management Curriculum is tending from discrete courses and the study of transitory details toward broader experiences. The management student within his own subspecialty option of the core curriculum is engaged in conceptualizing, designing, model building and criticism; systems analysis, decision analysis and operations analysis; studying behavioral aspects of organization; and information processing and utilization. "The curricular programs are the reason for the existence of the (PG) school and the framework within which is arranged the instruction, the laboratory work, and the project or thesis research required for a degree . . . They are the most successful means yet invented for combining the Navy's needs with the academic requirements for the degree and the school's accreditation (McNitt, p. 71)."

In effect, curriculum development is an inquiry into truth. Is the course content justified by the tests of relevancy, timing, and objectivity? "There does not exist yet - perhaps there never will - an ordering of disciplines that unifies all human knowledge (Lee, p. 360)." However, the quest for improvement and successful innovation in curriculum design must continue. In keeping pace with

educational achievement, new techniques must constantly be developed and tested. If change is called for, then change must occur! However, change is not always easy. Even within innovative educational institutions faculty members often, "fall into grooves and find it difficult to accept change even within their own bailiwick . . . (Henderson, p. 297)." What is easy is to find reason not to change. Fortunately, changing social needs and revised thinking about teaching methodology and learning are causing some innovations to occur in education. Although he was speaking about problems and deficiencies existing in the management of financial affairs, Vice Admiral H. G. Rickover provided these applicable closing thoughts:

> Knowing what needs to be done is the easy part; getting it done is the challenge . . . The great flaw in our system . . . is not the temptation it offers the strong man, but the latitude it allows the weak man to do less than is necessary (Rickover, 1973, pp. 2-4).

## APPENDIX A

## EDUCATION SUBSPECIALTY REQUIREMENT AND MANAGEMENT APPLICABILITY OF CURRICULUM CONTENT FOR NAVY SUBSPECIALTY AREA 9630, TRAINING AND EDUCATION MANAGEMENT

Dear Participant:

I sincerely appreciate your serving as a respondent to this questionnaire because of the important role you play in the education of Navy personnel.

This questionnaire is being used to provide data for a MASTER'S THESIS at the Naval Postgraduate School. OPNAVINST 1211.6D identified a new Navy officer subspecialty area of Training and Education Management (9630). The major source of inputs to the new subspecialty area will be via the Postgraduate School. In order to develop an effective and meaningful curriculum for the subspecialty, I need inputs on the subject matter content from individuals who are currently involved in the Navy's training and education effort.

As I approach the task of developing this curriculum, I believe it is important to express my view on what I envision the "product" of the course should be. The 9630 subspecialist should be an operationally experienced officer with formal postgraduate training in the field of education and training management. His job should be to apply his talents (or combine with the civilian educational specialist) to develop appropriate curricula, training systems and techniques and as necessary to adapt civilian methods to Navy training needs. The 9630 officer should be charged with the responsibility for administration and management of the education and training of naval personnel. The 9630 subspecialist should neither replace the civilian educational specialist nor function as a "professor in uniform".

In order to attain the objectives of the questionnaire, you are being asked to rank typical academic courses in the order of their importance in contributing to the professional development and management ability of an educational subspecialist. Regardless of your position or functions in relations to the Navy's training and education program, please make your rankings as impartially as possible and based solely on your own experience, knowledge and convictions.

Please fill in the personal data sheet, complete the ranking sheet and enclose them in the envelope provided. Note that your ranking will be anonymous. There is also an additional sheet provided for personal comments should you chose to make any. When you have completed, mail the envelope to CDR Smith at the Naval Postgraduate School.

Thank you for your cooperation and efforts in completing this questionnaire. Should you desire to discuss the development of this curriculum personally, please indicate your autovon phone number on the personal data sheet and I will contact you.

Sincerely yours,

R. L. Smith
CDR, U. S. Navy

EDUCATION SUBSPECIALTY REQUIREMENT
AND MANAGEMENT APPLICABILITY OF
CURRICULUM CONTENT FOR NAVY SUBSPECIALTY AREA 9630,
TRAINING AND EDUCATION MANAGEMENT

PERSONAL DATA

Please fill in or check the blanks as indicated.

1. Position or function (check one):

_____ Commanding Officer

_____ Director of Training or equivalent

_____ Department Head (with responsibility for curriculum development)

_____ OTHER (please identify position)_____

_____ Civilian Faculty (please identify position)_____

2. Time in position or function (1; above)

_____yrs. _____months

3. Time in training/education field

_____yrs. _____months

4. Highest educational degree attained (check one)

_____ No college degree

_____ Bachelors or equivalent

_____ Masters or equivalent

_____ Ph. D. or equivalent

5. Major field of study (4 above; descriptive title)

6. Time since completing study (4 above)

_____ yrs. _____ months

7. Would you care to discuss the development and subject content of this curriculum in a personal interview? yes/no _____
phone number _____

EDUCATION SUBSPECIALTY REQUIREMENT
AND MANAGEMENT APPLICABILITY OF
CURRICULUM CONTENT FOR NAVY SUBSPECIALTY AREA 9630,
TRAINING AND EDUCATION MANAGEMENT

TYPICAL COURSES

For your easy reference and as a possible aid in making your rankings, the typical courses and their I. D. numbers are listed below.

| I. D. NUMBERS | TITLE |
|---|---|
| 01 | INDIVIDUAL AND GROUP BEHAVIOR |
| 02 | QUANTITATIVE METHODS FOR MANAGEMENT |
| 03 | CURRICULUM DEVELOPMENT |
| 04 | MANAGERIAL ACCOUNTING |
| 05 | ORGANIZATION AND MANAGEMENT |
| 06 | OPERATIONS RESEARCH |
| 07 | SURVEY OF ECONOMIC THEORY |
| 08 | PERSONNEL TRAINING AND DEVELOPMENT |
| 09 | SYSTEMS ANALYSIS |
| 10 | INTERDISCIPLINARY SEMINAR |
| 11 | FUNDAMENTALS OF EDUCATION |
| 12 | FINANCIAL ACCOUNTING |
| 13 | MACROECONOMICS |
| 14 | EDUCATIONAL MEASUREMENT |
| 15 | EDUCATIONAL TECHNOLOGY |
| 16 | SOCIETY AND ENVIRONMENT |
| 17 | DECISION ANALYSIS |
| 18 | COST FINDING AND CONTROL |
| 19 | MANAGEMENT POLICY |
| 20 | MANAGEMENT USES OF COMPUTERS |
| 21 | MICROECONOMICS |
| 22 | PERSONNEL MANAGEMENT & INDUSTRIAL RELATIONS |
| 23 | EDUCATIONAL PSYCHOLOGY |
| 24 | NAVY SCHOOL ADMINISTRATION |
| 25 | RESOURCES MANAGEMENT FOR DEFENSE |
| 26 | THE ADULT AS A LEARNER |
| 27 | FINANCIAL PLANNING AND CONTROL |

EDUCATION SUBSPECIALTY REQUIREMENT
AND MANAGEMENT APPLICABILITY OF
CURRICULUM CONTENT FOR NAVY SUBSPECIALTY AREA 9630,
TRAINING AND EDUCATION MANAGEMENT

INSTRUCTION SHEET

1. General. Listed are 27 descriptions of typical academic courses considered applicable to the development of a Navy Training and Education Subspecialist. Please rank them according to their overall contributions to the professional development and management ability of an educational subspecialist.

Ranking criterion: Education Subspecialty Requirement refers to the professional development of the subspecialist as an educator. Management Applicability refers to the contribution the course can make in improving the capability of the subspecialist to plan, organize, direct, coordinate and control Navy educational activities in which the resources of men, money, and materials are combined to accomplish Navy training objectives.

2. Rules.

a. If you believe a course offers no contribution or you are not familiar with the subject matter, you need not rank the course.

b. Use as few or as many (27) ranks as you desire. However, if you use less than 27, they must be consecutive i.e., do not skip between ranks.

c. Ties (up to 6) are permitted within any rank you set up.

d. A rank of 1 indicates the most important contribution.

3. Suggested Approach.

a. Determine which course desciptions you will and will not rank.

b. Separate those you will rank into the categories of required courses and nice to have courses.

c. Assign ranking according to the rules above to those courses determined to be required courses. Assign ranking to remaining courses. On the sheet provided, list the courses by I.D. number according to the rank assigned.

EXAMPLE:

| Rank | No. of Courses within Rank | Courses (by I.D. number) within Rank | | | | | |
|---|---|---|---|---|---|---|---|
| 01 | 3 | 16 | 24 | 4 | | | |
| 02 | 5 | 2 | 10 | 20 | 12 | 5 | |
| 03 | 1 | 6 | | | | | |
| 04 | 4 | 3 | 7 | 1 | 27 | | |

EDUCATION SUBSPECIALTY REQUIREMENT
AND MANAGEMENT APPLICABILITY OF
CURRICULUM CONTENT FOR NAVY SUBSPECIALTY AREA 9630,
TRAINING AND EDUCATION MANAGEMENT

COURSE RANKING SHEET

| Rank | No. of Courses within Rank | Courses (by I.D. number) within Rank | | | | | | Rank |
|---|---|---|---|---|---|---|---|---|
| 01 | | | | | | | | 01 |
| 02 | | | | | | | | 02 |
| 03 | | | | | | | | 03 |
| 04 | | | | | | | | 04 |
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EDUCATION SUBSPECIALTY REQUIREMENT
AND MANAGEMENT APPLICABILITY OF
CURRICULUM CONTENT FOR NAVY SUBSPECIALTY AREA 9630,
TRAINING AND EDUCATION MANAGEMENT

COURSE RANKING SHEET (cont.)

| Rank | No. of Courses within Rank | Courses (by I.D. number) within Rank | | | | | | Rank |
|---|---|---|---|---|---|---|---|---|
| 21 | | | | | | | | 21 |
| 22 | | | | | | | | 22 |
| 23 | | | | | | | * | 23 |
| 24 | | | | | | * | * | 24 |
| 25 | | | | | * | * | * | 25 |
| 26 | | | | * | * | * | * | 26 |
| 27 | | | * | * | * | * | * | 27 |

* Cannot be used

Course Descriptions

01 INDIVIDUAL AND GROUP BEHAVIOR

A study of the basic characteristics and determinants of individual behavior including personality, motivation, learning, behavior conditioning and an introduction to personality tests and measurements. The relationship between the individual and the group including group effectiveness, leadership, group pressures and role behavior.

RANK _____

02 QUANTITATIVE METHODS FOR MANAGEMENT (2 QUARTERS)

Provides during the first quarter the mathematical basis for modern managerial tools and techniques. Includes a review of algebra, systems of linear equations and linear inequalities, an introduction to linear programming, vectors and matrices. Continue during the second quarter with a survey of differential and integral calculus. Applying elementary concepts from calculus, study definition and interpretation of probability, probability models, discrete and continuous random variables, important probability distributions and sampling theory.

RANK _____

03 CURRICULUM DEVELOPMENT

A study of the basis for selection and sequence of course content as related to objectives, selection and organization of learning experience, evaluation process and achievement of objectives.

RANK _____

04 MANAGERIAL ACCOUNTING

Survey of cost accounting systems, including overhead costing, job order and process cost systems, variable and absorption costing, and standard costs. Emphasis is on applications of accounting data to planning, control and decision making. Topics covered include flexible budgets, variance analysis, cost-volume-profit analysis and incremental profit analysis. Capital budgeting is examined extensively.

RANK _____

05 ORGANIZATION AND MANAGEMENT

A study of the problem areas of organization theory; management practice and the contributions of various theoretical disciplines to the evolving sciences of management.

RANK _____

06 OPERATIONS RESEARCH

Introduction to the philosophy and methodology of operations research. Survey of some of the more elementary techniques relating to decision making and optimization.

RANK _____

07 SURVEY OF ECONOMIC THEORY

A survey of the methodology of economics and its application to such problems as economic development, employment, inflation, industrial organization, consumer behavior and defense economics.

RANK _____

08 PERSONNEL TRAINING AND DEVELOPMENT

Determination of the skills, knowledges and attitudes in which people should be trained. Analysis of who should be trained, the methods currently available for training and the techniques for evaluating the efficiency of training.

RANK _____

09 SYSTEMS ANALYSIS

Principles of systems analysis and their relationship to the planning, programming, and budgeting system (PPBS), and the traditional OR models. Cost estimating and analysis. Overall structure of cost-effectiveness and decision criteria. Risk and uncertainty problems.

RANK _____

10 INTERDISCIPLINARY SEMINAR

A seminar approach to examining educational problems with the conceptual and methodological tools of psychology, philosophy, and sociology.

RANK _____

11 FUNDAMENTALS OF EDUCATION

An undergraduate introduction to the basic historical, philosophical, sociological and psychological foundations of professional education.

RANK _____

12 FINANCIAL ACCOUNTING

Study of the basic postulates and principles of accounting. Specific topics include the accounting cycle, asset valuation, equities and capital structure, financial statement analysis, and elementary cost accounting.

RANK _____

13 MACROECONOMICS

Development of macroeconomic models to analyze the relationships between aggregate demand, debt and financial assets, rate of technical advance, and national income. The monetary system and international monetary relationships.

RANK _____

14 EDUCATIONAL MEASUREMENT

Theory of educational measurement, test construction and content, measurement techniques, educational statistics, validity and reliability.

RANK _____

15 EDUCATIONAL TECHNOLOGY

The problems and potential in application of technological developments for meeting educational needs with emphasis on current research and experimentation. Included are studies of programmed instruction, computer assisted instruction, audio-visual and multi-media presentations.

RANK _____

16 SOCIETY AND ENVIRONMENT

A study of the major cultural groupings in American society and the implications of cultural differences in social grouping, ethnic origins and environment on educational policies and methodology.

RANK _____

17 DECISION ANALYSIS

The role of models in operations research and systems analysis. The structure of decision problems in a variety of circumstances. The importance of inductive and deductive reasoning.

RANK _____

18 COST FINDING AND CONTROL

Basic accounting concepts, principles and methods of data analysis for determining asset values and earnings. Analysis of cost effects upon activities and production units to determine cost incidence; cost control through use of standards and cost variance analysis; cost-volume-profit analysis, capital budgeting and replacement decisions.

RANK _____

19 MANAGEMENT POLICY

A study and appraisal of a variety of policies requiring the analysis of problems and the formulation of decisions in both business and governmental enterprises. Use of case material, management games, and other devices as exercises in decision making and the executive action under conditions of uncertainty and change.

RANK _____

20 MANAGEMENT USES OF COMPUTERS

Study of manual, semi-automatic, and automatic systems for the routine processing of data. Specific topics covered include accounting and auditing applications, sequential and random processing with digital computers, and control techniques.

RANK _____

21 MICROECONOMICS

Determinants of the allocation of resources and the composition of output. Consumer behavior and utility theory; theories of the firm; significance of market structure.

RANK _____

22 PERSONNEL MANAGEMENT AND INDUSTRIAL RELATIONS

The problems and practices encountered in the management of personnel in a government industrial organization. The institutions and techniques for resolving conflicts over wages and working conditions.

RANK _____

23 EDUCATIONAL PSYCHOLOGY

A study of the learner and the effects of such factors as environment, growth, maturation, motives, emotions, concept formation, transfer of training and instructor efficiency as they interact with the learning process.

RANK _____

24 NAVY SCHOOL ADMINISTRATION

The philosophy and objectives of Navy educational plant management. Basic concepts and elements of institutional administration, policy formation and implementation. Decision making and coordination in solving the management problems of school administration.

RANK _____

25 RESOURCES MANAGEMENT FOR DEFENSE

Introduction to the management of resources within the Department of Defense, with particular emphasis on the economic, social, and political environment in which the military manager operates. Study of the problems of allocating resources for defense, providing support for military programs, and collecting and processing quantitative management information that relates to these resources.

RANK _____

26 THE ADULT AS A LEARNER

A study of the meaning and nature of adulthood, maturity concepts, individual needs and the adult learning process. The principles, conditions and related research significant to the teaching-learning process in adult education.

RANK _____

27 FINANCIAL PLANNING AND CONTROL

Characteristics of corporate business. Analysis of short, intermediate and long term financial needs at different production levels; financial investments; sources of funds; burden of tax and debt; costs of capital; project planning and ratio analysis. Effect of alternative source of funds upon financial structures.

RANK _____

## APPENDIX B

## COMMANDS RECEIVING QUESTIONNAIRES

COMMANDANT OF THE MARINE CORPS

CHIEF OF NAVAL TRAINING

CHIEF OF NAVAL TECHNICAL TRAINING

SUPERINTENDENT, U. S. NAVAL ACADEMY

PRESIDENT, NAVAL WAR COLLEGE

CO, NAVAL ACADEMY PREPARATORY SCHOOL

CO, NAVAL SCHOOL CIVIL ENGINEER CORPS OFFICERS

CO, NAVAL DESTROYER OFFICERS SCHOOL

CO, NAVAL JUSTICE SCHOOL

HEAD, DEPARTMENT OF NAVAL SCIENCE, MERCHANT MARINE ACADEMY

CO, NAVAL NUCLEAR POWER SCHOOL,BAINBRIDGE

CO, NAVAL NUCLEAR POWER SCHOOL,VALLEJO

CO, NROTC UNIT, UNIVERSITY OF TEXAS

CO, NROTC UNIT, MARQUETTE

CO, NROTC UNIT, THE OHIO STATE UNIVERSITY

CO, NROTC UNIT, CORNELL UNIVERSITY

CO, NROTC UNIT, UNIVERSITY OF PENNSYLVANIA

CO, NROTC UNIT, STANFORD UNIVERSITY

CO, NAVAL SUPPLY CORPS SCHOOL

CO, FLEET TRAINING CENTER, LONG BEACH

CO, FLEET TRAINING CENTER, NEWPORT, RI

CO, FLEET TRAINING CENTER, NORFOLK

CO, FLEET TRAINING CENTER, SAN DIEGO

CO, FLEET COMBAT DIRECTION SYSTEM TRAINING CENTER, SAN DIEGO

CO, FLEET COMBAT DIRECTION SYSTEM TRAINING CENTER, DAM NECK

COMMANDER, NAVAL OFFICER TRAINING CENTER, NEWPORT, RI

CO, SERVICE SCHOOLS COMMAND, BAINBRIDGE

CO, SERVICE SCHOOLS COMMAND, GREAT LAKES

CO, SERVICE SCHOOLS COMMAND, ORLANDO

CO, SERVICE SCHOOLS COMMAND, SAN DIEGO

COMMANDER, NAVAL TRAINING CENTER, BAINBRIDGE

COMMANDER, NAVAL TRAINING CENTER, GREAT LAKES

COMMANDER, NAVAL TRAINING CENTER, ORLANDO

COMMANDER, NAVAL TRAINING CENTER, SAN DIEGO

CHIEF, NAVAL TRAINING SUPPORT, PENSACOLA

CO, NAVAL AMPHIBIOUS SCHOOL, LITTLE CREEK

CO, NAVAL AMPHIBIOUS SCHOOL, CORONADO

CO, NAVAL SCHOOLS COMMAND, TREASURE ISLAND

CO, NAVAL SCHOOLS COMMAND, MARE ISLAND

DIRECTOR, NAVAL MANAGEMENT SYSTEMS CENTER

CO, NAVAL PERSONNEL AND TRAINING RESEARCH LABORATORY, SAN DIEGO

## BIBLIOGRAPHY


Andrews, F. M. and D. C. Pelz Ford's procedure for combining multiple sets of partially ordered data. Unpublished manuscript, Institute for Social Research, University of Michigan.

Arima, J. K. and R. W. Mister Evaluation and innovation in the navy's personnel research laboratories. Naval Postgraduate School report NPS 55AA72051A, May 1972.

Bagley, D. H. From the Chief of Naval Personnel. The Officer Personnel Newsletter, Bureau of Naval Personnel, October 1972, 16, 1-2.

Brazziel, W. F. Curriculum development and the larger learnings. Educational Record, Summer 1966, 47, 336-339.

Bruner, J. S. Toward a theory of instruction. Cambridge, Mass.: Belknap Press of Harvard University, 1966.

Byrnside, B. C. What makes Sammy stay? Perspectives in Defense Management, Autumn 1971, 45-50.

Cagle, M. W. Demensions. TRANAV, magazine of naval training, January 1972, 1.

Calvert, J. C. The naval profession. New York: McGraw-Hill, 1965.

Carrison, D. J. The United States Navy. New York: Frederick A. Praeger, 1968.

Catalogue for 1972-1974, Naval Postgraduate School. Government Printing Office 790-651, 1972.

CNO policy statement on specialization in warfare subcategories. The Officer Personnel Newsletter, Bureau of Naval Personnel, July 1971, 16, 3-4.

CNP letter Pers-B43a-we serial B43/36 of March 15, 1973 to CDR Robert L. Smith, USN.

CO, RTC, NTC, Great Lakes, Il letter FT29-04:WPW:rhs, 1200, serial 461 of 20 March 1972 to Chief of Naval Operations (OP-01).

Henderson, A. D. Innovations in educating for the professions. Educational Record, Summer 1968, 49, 290-297.

Lee, C. B. T. Knowledge structure and curriculum development. Educational Record, Summer 1966, 47, 347-360.

May, P. E. Personal letter of 9 December 1971 to Rear Admiral A. A. Bergner, USN

McNitt, R. W. The Naval Postgraduate School, sixty years young. United States Naval Institute Proceedings, June 1970, 96, 69-78.

Milkovich, G. T., A. A. Annoni, T. A. Mahoney The use of the delphi procedures in manpower forecasting. Management Science, December 1972, 19, 381-388.

Morrison, G. S. Major command. United States Naval Institute Proceedings, August 1971, 97, 14-17.

Morse, G. E. Mandate for education and training: Focus on the individual. Personnel, November-December 1971, 48, 8-16.

Nie, N., D. H. Bent, H. C. Hadlai SPSS, statistical package for the social sciences. New York: McGraw-Hill, 1970.

Pakradooni, H. H. Career planning board (BUPERS) position paper on training and education subspecialist dated 24 March 1972.

Parker, J. Cagle to upgrade education careers, shipboard training, Navy Times, 4 October 1972, 1.

Prina, L. E. Naval training czar. Navy, July-August 1971, 14, 6.

Rickover, H. G. Personal accountability in financial management. An address to the Financial Management Conference on 31 January 1973, Government Printing Office 726-007, 1973, 1-11.

Roberts, E. B., H. B. Weil Implementing new educational technology for the military. Naval War College Review, April 1971, 23, 22-27.

SECNAV letter to the flag board. Navy Times, 28 March 1973, 3.

Snyder, B. R. The hidden curriculum. New York: Alfred A. Knopl, 1971.

Steinberg, I. S. Educational myths and realities. Reading, Mass.: Addison-Wesley Publishing Co., 1968.

Training moves ashore. TRANAV, magazine of naval training, January 1972, 2-5.

Uhlig, F. Some speculations on the Navy at the end of the 1970's. Naval War College Review, May 1972, 24, 9-15.

Vernam, C. C. "A" Chief of Naval Training staff position paper on training/education management subspecialty dated 3 January 1973.

Vernam, C. C. "B" Chief of Naval Training staff position paper on training/education management subspecialty dated 23 April 1973.

Washbush, J. B., L. R. Hess The officer educational specialist - a proposal. United States Naval Institute Proceedings, July 1972, 98, 116-118.

Whetstone, M. Introducing CNT: Streamlined training for the now navy. ALL HANDS, January 1973, 3-9.

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13. ABSTRACT
OPNAV INSTRUCTION 1211.6D dated 8 January 1973 identified a new naval officer subspecialty, Training/Education (T/E) Management (9630). The instruction neither defined the new subspecialty nor specified the educational requirements necessary for the subspecialist. This paper presents background information leading to the identification of the T/E management subspecialty and an operational definition of the subspecialty. The paper continues with the results of a survey taken of a representative sample of the naval training community to identify the academic subject matter that the T/E management subspecialist should study in a postgraduate course of education. The results of the survey are used to develop two alternative curriculums to support the subspecialty which meet the Naval Postgraduate School (NPS) requirements for the degree of Master of Science in Management. Alternative ONE describes a unique curriculum for the subspecialty and Alternative TWO modifies the (817) Management Curriculum at NPS to support a Training/Education Management option. The conclusions of the paper argue that the T/E management subspecialty does not require its own unique academic curriculum.

| KEY WORDS | LINK A | | LINK B | | LINK C | |
|---|---|---|---|---|---|---|
| | ROLE | WT | ROLE | WT | ROLE | WT |
| aining | | | | | | |
| aining Management | | | | | | |
| aining/Education Management | | | | | | |
| vy Training Management | | | | | | |
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